Shelley to Moffat Beach Coastal Study

MNES Assessment Report

Prepared for:
Sunshine Coast Regional Council

10 July 2023

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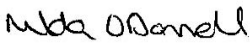
0	10-07-2023	Issued for use	Nikki O'Donnell, Principal Consultant and CEnvP	

Prepared for:
Sunshine Coast Regional Council

Prepared by:
Attexo Group Pty Ltd
attexo.com.au
ABN 75 637 138 008

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1.0 Introduction

1.1 Proposed Action

At the beginning of 2021, Sunshine Coast Regional Council (hereafter referred to as Council) commenced a detailed study of the coastal strip from the southern end of Shelly Beach northwards to Tooway Lake. This 2 km section of the Sunshine Coast is enjoyed as a series of individual locations (Moffat Beach, George Watson Park, North Shelly Beach and South Shelly Beach), and also as a series of connected experiences linked by the Coastal Path. The Shelly Beach area has been a focus for discussion and community tension for a number of years, mainly focused on:

- Light impact on marine turtles;
- Views (from private residences);
- Vegetation management and species choice;
- Cottonwood trees (*Hibiscus tiliaceus*) on the dune; and
- Placement of shade cloth at William Street car park in December 2020.

Essentially, the Sunshine Coast community is growing and this growth generates competing interest in an increasingly constrained environment. The high ecological, amenity and landscape values of the area coupled with increasing recreation demands means the area requires careful consideration to ensure a sustainable balance can be struck between its significant natural values, increasing community use and diverse community expectations and desires.

Council proposes to undertake a vegetation management pilot study within a small area (part of Lot 9 on SP 100298; 26°47′51″S, 153°8′55″E) of the fore dune at North Shelly Beach, see **Figure 1-1**. The proposed development area is approximately 1,492 m^2 (or 0.15 ha), including a disturbance footprint of approximately 521 m^2 (or 0.05 ha). The objective of the action is to improve habitat quality for nesting loggerhead turtles (*Caretta caretta*). Primary actions will comprise the removal of cottonwood trees in the frontal dune and subsequent replacement with endemic native plant species that are more conducive to turtle nesting. The objective of the pilot study is to monitor and assess how the environment responds to this action before rolling it out in a staged approach, over 5-10 years, across a larger section of north Shelly Beach (approximately 200m length). Any future vegetation modification works to enhance turtle nesting habitat quality will be predicated on the success and learnings from the pilot study.

Further details on the proposed action are provided in **Section 3.0**.

Attexo

Shelly Beach Coastal Study EPBC Referral

Project Location

Figure 1.1

Road
Study Area
Property Boundaries

Data Source(s): Digital Cadastral Database - Department of Natural Resources, Mines and Energy (2023) MBRC, Esri, Geoscience Australia, NASA, NGA, USGS

0 10 20 Meters

Scale: 1:1,000@A3

Date: 29/05/2023 | Author: JT | Reviewed: NOD | Project: SCR-001

Path: C:\Users\JoshuaTomarchio\Attexo Group\SCR-001 - Shelly Beach to Moffat Beach Coastal Study EPBC Referral - Documents\4. GIS\4.2 Desktop GIS\00_MasterMap\00_Mastermap\00_Mastermap.aprx

1.2 Purpose of this Report

Attexo Group Pty Ltd (Attexo) has been engaged by Council to prepare this report which identifies and assesses environmental values prescribed as Matters of National Environmental Significance (MNES) under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). The purpose of this report is to describe the proposed action and Project area, present the findings of desktop and field-based ecological assessments in the Project area and present an assessment of potential impacts to MNES as a result of Project activities.

The Project is anticipated to have a *positive* impact on a MNES, the loggerhead turtle (listed as Endangered and Migratory under the EPBC Act, listed as Endangered under the Queensland *Nature Conservation Act 1992* and listed globally as Vulnerable on the IUCN Red List). Nonetheless, the Project is being referred to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) as a matter of due diligence and in the interests of transparency.

1.3 Consultation

1.3.1 Preliminary Consultation

Community engagement was initially undertaken between January and April 2021. This engagement was undertaken through a combination of:

- An online survey, with over 1000 responses received;
- Hosted listening posts over two weekends at Victoria Terrace car park, William Street and Moffat Beach;
- 8 site walks over 3 days with stakeholder groups, representing a diverse range of residents' interests and conservation groups.

Key insights from early engagement exercises were used to help Inform and advance the project, to ensure the work progressed in response to a clear understanding of place values and community needs.

Table 1-1 Key Insights from Early Community Engagement

	Early Insights from Community Engagement	Influence on Project Process and Actions
Community values	• Strong interest / passion for the area shared by local residents. • Many diverse stakeholders interested in the Project. • Some interested community members not yet represented as stakeholders in the process. • Strong desire to preserve what is special about the area – to ensure future generations can enjoy the same experiences.	• The significance of issues being explored in the Project warranted a measured approach – with time taken to pause, step back and ensure all members of the community were able to comfortably be part of the process. • Time was needed to rebuild trust between the community and Council, and within the community. • The opportunity to determine a set of shared community priorities / values was important to unite stakeholders and explore priority actions.

	Early Insights from Community Engagement	Influence on Project Process and Actions
Landscape and wildlife values	• Strong recognition of the complexity and high value of the environment – flora and fauna. • Recognition that the area is under significant pressure.	• Understand and work with the complexity of the natural and human systems. • Take an integrated and whole of landscape approach to deliver holistic outcomes that balance the needs of people, flora and fauna.
Management	• Many groups participate in managing and contributing to the upkeep of the area – across community and Council. • There are many perspectives on what is best for the area in terms of its upkeep. • The actions and activities of the groups involved in the area are currently not well coordinated. • They have shared objectives but approaches are not aligned.	• Take an evidence-based approach to determine recommendations. • Seek appropriate technical and scientific inputs. • Define a clear set of objectives supported by a plan of action that can be shared by diverse stakeholder groups to align action and investment.

1.3.2 Subsequent Consultation

As a result of the high levels of interest from the community, the original process and program was expanded to accommodate an additional engagement exercise, to ensure that everyone who wished to participate was confident and felt supported to do so.

Additional meetings were held throughout May and June 2021 with individual stakeholder groups to share the findings of the initial engagement process and to test the emerging community values and priorities for the Project.

1.3.3 Key Insights

The engagement process:

- Confirmed a set of unifying community "priority place values";
- Identified a set of "desired outcomes" for the area; and
- Highlighted several key issues requiring consideration and "focus for action".

Table 1-2 lists the priority place values and corresponding desired outcomes identified through the engagement process.

Table 1-2 Priority Place Values and Desired Outcomes

Priority Place Values	Protect and enhance: The turtles	The dune and beach habitat	Public amenity and the coastal path
Desired Outcomes	• Increased area for natural turtle nesting • Reduction in the requirement to relocate turtle nests • Increase the options / area available for turtle nest relocation • Reduction in light spill	• Enhanced ecological diversity	• Enhanced recreation and visitor experiences • Increased public vantage points for appreciation of local amenity • Fit for purpose services and infrastructure • Increased area of public recreation open space • Reduction in conflict on coastal path
	Across all priorities: • Enhanced recognition and celebration of history, cultural heritage, environment, etc. • Enhanced awareness and education about the area's distinctive natural and cultural values		

Several key issues emerged through the course of the engagement process, requiring additional levels of consideration, clarification and direction (see **Table 1-3**). They became the focus of further detailed investigation and informed additional consultation activities undertaken between June and September 2021 and early 2022, with key technical experts to understand influences, opportunities, and potential parameters for actions.

Table 1-3 Focus for Action Items

	Key Issues	Focus for Action
The dune and beach (William Street to Russell Street)	Evidence suggests a highly modified landscape, with significant contemporary ecological and amenity value, and diverse / conflicting stakeholder opinion regarding appropriate vegetation mix and management.	• Establish landscape management strategies to support the evolution of a resilient and appropriate dune landscape and ecology.
Turtles and light spill	Community concern regarding light spill onto the beach and the impact on nesting turtle behaviour.	• Mitigate the negative impact of light spill and improve community understanding of turtle needs.
William Street car park	Community concern regarding light spill onto the beach from parked cars	• Address the role and integration of parking provision at William Street to

	Key Issues	Focus for Action
	and the impact on nesting turtle behaviour.	support the community and the local fauna.
Illegal action impacting vegetation	Community concern regarding: • Illegal vegetation management – clearing, pruning, poisoning, planting • Undesirable activity / use of the beach negatively impacting the health of vegetation.	• Address illegal vegetation management, and establish and enforce a consistent and clear Council position.
Beach access	Community conflict over beach access and impact on dune ecology and vegetation health.	• Ensure appropriate beach access is provided that facilitates community use and protects sensitive ecologies.
The coastal path	Increasing and diversified use causing conflict.	• Address behaviours and path conditions to support safe use by all.
Education and awareness	Concern new residents and visitors lack understanding of natural systems and sensitive habitats in the area.	• Opportunity to improve awareness and change behaviour to support improved ecological value and cultural knowledge.
Coordination	Uncoordinated management activity (Council and community) by diverse groups resulting in unintended outcomes – despite best intentions.	• Create a resource/s to communicate a consistent and clear set of objectives and desired outcomes to guide all inputs, enhancements and management activity in the area • Improve awareness and coordination of management activities across stakeholders to improve ecological and amenity outcomes aligned to a set of shared objectives.

On Saturday 30 October 2021 stakeholder groups and the broader community were invited to attend an exhibition style presentation of these key directions. The focus of the exhibition was nine panels, which along with an accompanying Word document were also available online following the exhibition for further community feedback between 31 October 21 – 29 November 2021. Council received 135 online submissions and the exhibition was attended by close to 100 people.

Feedback from the community was well considered, with significant advice and information provided in response to the proposed directions documented in the panels. From the online and in-person submissions received there was generally significant community support for the proposed directions and actions.

Council will seek to continue to work with and consult the community to advance the project recommendations. In addition, the sensitivity and vulnerabilities of the landscape and ecologies in the study area require the adoption of an integrated and collaborative approach that draws together the appropriate technical expertise – turtles, dunes and vegetation – to inform any proposed physical change at Shelly Beach.

2.0 Regulatory Framework

2.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the Australian Government's central piece of environmental legislation that provides a legal framework to protect and manage Matters of National Environmental Significance (MNES), many of which are also internationally important. If a proposed development or other action is likely to have a significant impact on a protected matter, then it must be referred for assessment under the EPBC Act. Importantly, the EPBC Act does not directly address potential positive impacts on MNES.

Protected matters under the EPBC Act are:

- World Heritage properties;
- National Heritage places;
- Wetlands of international importance (as listed under the Ramsar Convention);
- Listed threatened ecological communities (TECs) and listed threatened species;
- Migratory species protected under international agreements;
- Commonwealth marine areas;
- The Great Barrier Reef Marine Park;
- The environment, where nuclear actions are involved;
- A water resource, in relation to coal seam gas and large coal mining developments;
- The environment, where actions are proposed on or will affect Commonwealth land; and
- The environment, where Commonwealth agencies are proposing to undertake the action.

This report has been prepared to support referral of the Pilot Study under the EPBC Act. The report outlines those MNES which have potential to occur in the project area and how impacts to those MNES will be managed. It discusses the potential for significant residual impacts to occur to MNES based on applying the significant impact guidelines.

2.2 Queensland Framework

Whilst Queensland legislative requirements are not directly applicable to MNES, they are included here for context.

2.2.1 Vegetation Management Act 1999

The purpose of the *Vegetation Management Act 1999* (the VM Act) is to regulate the clearing of native vegetation in a way that conserves remnant vegetation in declared areas, ensures clearing does not cause land degradation, prevents the loss of biodiversity and maintains ecological processes.

Under the VM Act, regional ecosystems (REs) are assigned one of three statuses:

- Endangered;

- Of Concern; or
- Least Concern.

The vegetation in the Pilot Study area has been mapped by the Queensland Department of Resources (DoR) as Category C High Value Regrowth. However, correspondence with The Vegetation Hub at DoR has indicated that the mapping is incorrect as it does not reflect the underlying tenure of the land as Trust Land (with Council being the Trustee).

The vegetation should more accurately be mapped as Category X. Selectively clearing this vegetation is therefore exempt from requiring a permit under the VM Act provided it is "*Consistent with achieving the purposes of the trust, any vegetation clearing carried out, or authorized to be carried out, by the trustee*".

2.2.2 Nature Conservation Act 1992

The objective of the *Nature Conservation Act 1992* (the NC Act) is the conservation of nature; the NC Act provides for the gazettal of protected areas including nature refuges, prescribes classes of wildlife and sets out restrictions on the taking or harm to native wildlife without a valid permit. Threatened flora and fauna species have been assessed in terms of those with potential to occur in the Project area.

The focus of this report is on species listed under the EPBC Act, nevertheless those species that are also listed under the NC Act are noted.

The NC Act also provides the mechanism for proponents to obtain permits to tamper with animal breeding places and to clear NC Act-listed Endangered, Vulnerable or Near Threatened plants.

2.2.3 Biosecurity Act 2014

The *Biosecurity Act 2014* provides a legislative framework to manage pest flora and fauna, diseases and environmental contaminants, to address the impacts they have on the economy, environment, agriculture, tourism and society. The Act prohibits or restricts the introduction and spread of declared plant and animal pests within Queensland.

2.2.4 Fisheries Act 1994

The purpose of the *Fisheries Act 1994* (Fisheries Act) relevant to the Project is for the management and protection of fisheries resources and fish habitats.

All marine plants are protected in Queensland through provisions of the Fisheries Act. Marine plants grow on or adjacent to tidal lands. They include mangroves, seagrass, salt (marine) couch, algae, samphire (succulent) vegetation and adjacent plants, such as melaleuca (paper barks) and casuarina (coastal she-oaks).

Specifically relating to the North Shelly Beach Pilot Study, cottonwood trees (*Hibiscus tiliaceus*) on the dune area are likely to be considered marine plants by the Department of Agriculture and Fisheries (DAF). The *Fish Habitat Management Operational Policy* (FHMOP 001) lists cottonwood trees as an important mangrove associate species, normally colonising a high intertidal position. This species is also an important fisheries resource in certain environments.

In certain instances, marine plants may be removed or impacted without prior development approval under the *Accepted development requirements for operational work that is the removal, destruction or damage of marine plants* (ADR) (DAF, 2017). Under item 2.12 of the ADR, marine plants may be removed in accordance with a Fisheries Queensland endorsed project plan.

Item 2.12 allows 'Fish habitat rehabilitation or restoration work (including not-for-profit marine plant nursery establishment) that provides a net benefit to marine plant communities'. The proposed works may constitute fish habitat rehabilitation or restoration work given the primary aim is to enhance dunal ecology and vegetation diversity in order to support turtle nesting at the site.

Consultation with relevant Fisheries officers from DAF is proposed to be undertaken as soon as practicable to ensure that they support the works being undertaken under item 2.12 of the ADR.

2.2.5 Coastal Protection and Management Act 1995

Assessable development under the *Coastal Protection and Management Act 1995* (CPM Act) includes 'removing or interfering with coastal dunes on land, other than State coastal land, that is in an erosion prone area' in the coastal management district (CMD). The proposed works are located within coastal dunes, the CMD and within the erosion prone area (as mapped in the Development Assessment Mapping System).

However, as per the *Excluded work (Coastal) Guideline for coastal development* (Qld Government, 2022) 'excluded work' under the Planning Regulations includes 'minor work that has an insignificant impact on coastal management and is reversible or expendable'. Further, works to be considered minor works include 'native vegetation management (including maintenance and planting) and associated fencing, irrigation system or weed control consistent with leading practice in maintaining frontal dune vegetation and dune stability' as per Section 4 of the Excluded Works guideline. The proposed works are likely to constitute minor works as defined in the Excluded Works guideline.

Consultation with relevant officers from the Department of Environment and Science (DES) Coastal Policy team is proposed to be undertaken as soon as practicable to ensure that they support the rationale that the proposed works constitute excluded works.

2.3 International Treaties and Conventions

2.3.1 The Biodiversity Convention

The Convention on Biological Diversity was conceived as an output of the 1992 Rio Earth Summit and has three main objectives:

- The conservation of biological diversity;
- The sustainable use of the components of biological diversity; and
- The fair and equitable sharing of the benefits arising from the utilisation of genetic resources.

Signatories to the Biodiversity Convention are required to prepare and implement a National Biodiversity Strategy and Action Plan (NBSAP). *Australia's Biodiversity Conservation Strategy 2010-2030* (the Strategy) is Australia's NBSAP. This overarching biodiversity conservation framework outlines Australia's 10 national targets and how they align with the 20 Aichi Biodiversity Targets, and the national contribution to the achievement of each. **Table 2-1** summarises these targets and outlines how the Project will not be inconsistent with them.

Table 2-1 Australia's 10 National Targets for Biodiversity Conservation

Target	Project Response
By 2015, achieve a 25% increase in the number of Australians and public and private organisations who participate in biodiversity conservation activities.	There is already a well-established citizen science program involved in turtle monitoring on the Sunshine Coast, with over 250 trained volunteers from Sunshine Coast TurtleCare, Coolum and North Shore Coast Care and Bribie Island Turtle trackers. This program has received praise from the Queensland Government's Chief Scientist as "*one of the best community responses to care of turtles and their habitats that I have seen in more than 50 years of researching and managing marine turtles*" (SCC 2023).
By 2015, achieve a 25% increase in employment and participation of Indigenous peoples in biodiversity conservation.	The Project has actively sought the views of the Traditional Owners, and a representative of the group has endorsed the proposed rehabilitation of the dune.
By 2015, achieve a doubling of the value of complementary markets for ecosystem services.	Valuation of complementary markets is beyond the scope of this Project, nevertheless the rehabilitation and enhancement of this stretch of coastline is being proposed in direct response to the known ecosystem services provided (regulating, supporting and cultural).
By 2015, achieve a national increase of 600,000 km^2 of native habitat managed primarily for biodiversity conservation across terrestrial, aquatic and marine environments.	The specific aim of the vegetation management Pilot Study is to improve the habitat of North Shelly Beach for nesting loggerhead turtles.
By 2015, 1,000 km^2 of fragmented landscapes and aquatic systems are being restored to improve ecological connectivity.	The Project will enhance ecological connectivity along the Shelly to Moffat Beach coastline.
By 2015, four collaborative continental-scale linkages are established and managed to improve ecological connectivity.	The establishment of collaborative, continental-scale linkages are beyond the scope of this Project.
By 2015, reduce by at least 10% the impacts of invasive species on threatened species and ecological communities in terrestrial, aquatic and marine environments.	Although native to the Sunshine Coast, the planted cottonwoods are exhibiting invasive growth patterns across the dune system at Shelly Beach and have virtually formed a monoculture. One of the primary aims of the Pilot Study is to restore a more natural balance of native species to this coastal ecosystem.
By 2015, nationally agreed science and knowledge priorities for biodiversity conservation are guiding research activities.	The Project will not directly contribute to this target, nor will it be inconsistent with its intent.
By 2015, all jurisdictions will review relevant legislation, policies and programs to maximise alignment with Australia's Biodiversity Conservation Strategy.	The Project will not directly contribute to this target, nor will it be inconsistent with its intent.

Target	Project Response
By 2015, establish a national long-term biodiversity monitoring and reporting system.	The Project will not directly contribute to this target, nor will it be inconsistent with its intent.

Overall, the Project is **consistent** with Australia's obligations under the Biodiversity Convention.

2.3.2 The Bonn Convention

Australia is signatory to the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) which provides a global platform for the conservation and sustainable use of migratory animals and their habitats. Australia implements its obligations to the Bonn Convention through national legislation – the EPBC Act. The EPBC Act gives effect to Australia's obligations under the Convention through the protection of all migratory species listed under the Act.

The convention definition of migratory species is 'the entire population or any geographically separate part of the population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries'. This definition has been adopted in the EPBC Act.

Migratory species threatened with extinction are listed on Appendix I of the Convention. CMS Parties strive towards strictly protecting these animals, conserving or restoring the places where they live, mitigating obstacles to migration and controlling other factors that might endanger them. Besides establishing obligations for each State joining the Convention, CMS promotes concerted action among the Range States of many of these species.

The loggerhead turtle is listed in Appendix I of the Convention. The Pilot Study will have a positive impact on the loggerhead turtle and is therefore **consistent** with Australia's obligations under the Bonn Convention.

2.3.3 CITES

Australia implements its obligations under the Convention on International Trade in Endangered Species of Flora and Fauna (CITES) through the EPBC Act, which aims to ensure that the international trade in wildlife does not threaten wild populations of flora and fauna. Domestic measures that are imposed to restrict trade in CITES listed species include tight restrictions on international imports and exports of species listed in Appendix II of the Convention, and the exclusion of some species from personal and household effects exemptions.

The Project does not relate to the trade in flora and fauna species, in whole or in part, and is **consistent** with Australia's commitments under CITES.

3.0 Project Description

3.1 Project Need

The Sunshine Coast community has been experiencing rapid growth in recent years, a situation that was heightened during the global pandemic. There is a need to sustainably balance the competing expectations of the community with the preservation of the biodiversity and landscape values of this sensitive, highly valued area.

3.2 Pilot Study

The intention of the Pilot Study is to map a way forward to guide the future evolution and management of this part of the coastal landscape, including the Coastal Path, to ensure the best outcomes for residents, the natural vegetation of the area and its wildlife. The findings of the Pilot Study will help inform Council management of the area, and will help provide clear and consistent direction.

The Pilot Study presents an opportunity to deliver a 'best practice' approach to support nesting turtles within the region by ensuring the habitat needs of nesting turtles can be factored into any vegetation management or adaptation both in terms of species choice and removal practices.

The Pilot Study site selection process was informed by the following key considerations:

- Identification of the dune area most heavily dominated by cottonwood trees and limiting available space for natural turtle nesting;
- Avoiding most consistently successful natural turtle nesting locations on North Shelly Beach;
- Avoiding current preferred / successful turtle nest relocation areas;
- Recognition that successful turtle nesting habitat requires approximately 18 months to settle post significant disturbance of sand dune to minimize poor nest outcomes;
- Risk of widespread coastal / dune erosion if the entire area was managed at the same time; and
- Risk of significant impact on successful turtle nesting from poor outcomes if cottonwood management is not delivered in a staged and sequenced manner integrated with dune management.

3.3 Site Activities

Key drivers for the design of the Pilot Study include:

- An elevated frontal dune is important nesting habitat for turtles. Optimum conditions are characterized by low grassy vegetation with a shallow root system.
- An elevated dark horizon behind the nesting habitat (typically provided by dune vegetation or rocky headlands) is required to assist in sea finding. Aim to achieve equal or improved levels of dune height.
- Light affects the turtles if it can be seen from the nesting beach, nearshore and adjacent waters. Aim to achieve improved opacity to manage light sources.

It is proposed that enhanced dunal ecology and vegetation diversity will be achieved through:

- The assisted staged reduction in the current extent of cottonwoods on the foredune at North Shelly Beach;
- Dune vegetation rehabilitation activities to establish a functional foredune vegetation community informed by RE 12.2.14, including spinifex on the frontal dune grading to foredune herbland and then into *Casuarina equisetifolia, Banksia integrifolia* and *Pandanus tectorius*;
- Dune vegetation rehabilitation activities to establish a pseudo hind-dune vegetation community will include native species to consolidate the dark horizon;
- Dune vegetation species composition, density and height to provide equivalent to or enhanced dark sky and light glow management outcomes (elevated dark horizon supporting ocean-finding behaviour); and
- Outcomes to balance enhanced ecological diversity, dune stabilization against coastal erosion processes and turtle conservation.

Figure 3-1 illustrates the proposed vegetation management strategies within and adjacent to the Pilot Study. Cottonwoods and marine couch grass growing at the high tide mark will be manually removed by Council staff to remove physical restrictions to turtle nesting; these will be replaced by coastal spinifex plantings (and other selected foredune species endemic to RE 12.2.14 that are conducive to turtle nesting) within the marine turtle nesting habitat (zone 1). Whilst care will be taken to minimize removal of sand at the same time, it is acknowledged that some beach renourishment is likely to be required and this is planned to be sourced from elsewhere on Shelly Beach in order to replicate the biophysical properties (in particular, the large sand grit size) of the nesting medium.

Within the buffer zone immediately surrounding the turtle nesting habitat, cottonwoods will be managed (selectively pruned) in order to encourage other native species to develop up from the understory (where they are currently crowded by the dense cottonwood cover). Plantings of *Pandanus tectorius, Banksia integrifolia* and *Casuarina equisitifolia* will be maintained approximately 10m landward of the turtle nesting habitat area to minimize risk of root impacts on turtle nests. Infill planting will also be undertaken within the buffer zone, in bare or degraded parts of the dune, with the species palette indicated in **Figure 3-1.**

Dune areas subject to disturbance through the removal of woody vegetation will be unsuitable as nesting habitat for a period of approximately 18 months, until the sand has resettled. Therefore, the Pilot Study area will be fenced for the duration in order to exclude nesting turtles and deter members of the public from disturbing the dune rehabilitation area. Any turtle nests laid within the Pilot Study area within the 18 month dune settlement period will be relocated to mimimise the risk of poor nest outcomes.

Draft North Shelly Beach Vegetation Management - Pilot Site

Zone 1: Marine Turtle Nesting Habitat

Species palette- Key examples

- *Ipomea pes-caprae* (Goats Foot Convolvulus)
- *Spinifex hirsutus* (Spinifex)
- *Spinifex sericeous* (Spinifex)
- *Ischaemum triticeum* (Creeping Wheat Grass)
- *Eragrostis interrupta* (Pond Love Grass)

Objectives:

Gradually replace *Hibiscus tiliaceus* (Cottonwood) with grasses, vines and sparse shrubs and trees with shallow root systems to facilitate successful nesting and avoid root intrusion.

Image 1: Reference Site Zone 1

Zone 2: Buffer Maintenance Zone

Species palette- Key examples

- *Cyclophyllum coprosmoides* (Coast Canthium)
- *Petalostigma pubescens* (Quinine Berry)
- *Alectryon coriaceous* (Beach Birds Eye)
- *Hibiscus tileaceus* (Cottonwood)***
- *Banksia integrifolia* (Coastal Banksia)
- *Casuarina equisetifolia var. incana* (Coastal She-Oak)
- *Pandanus tectorius* (Screwpine)
- *Acronychia imperforata* (Fraser Island Apple)

Objectives:

Consolidate the elevated dark horizon to support turtle sea-finding behaviour. Management of cottonwoods and support establishment of diverse species suitable for nesting habitat.

Image 2: Reference Site Zone 2

Zone 3: Vegetated Dark Horizon

Species palette- Key examples

- *Cyclophyllum coprosmoides* (Coast Canthium)
- *Petalostigma pubescens* (Quinine Berry)
- *Alectryon coriaceous* (Beach Birds Eye)
- *Hibiscus tileaceus* (Cottonwood)
- *Banksia integrifolia* (Coastal Banksia)
- *Casuarina equisetifolia var. incana* (Coastal She-Oak)
- *Pandanus tectorius* (Screwpine)
- *Acronychia imperforata* (Fraser Island Apple)

Objectives:

Consolidate the elevated dark horizon to support turtle sea-finding behaviour.

Image 3: Reference Site Zone 3

Zone 4: New Vegetated Dark Horizon and Coastal Pathway Amenity

Species palette- Key examples

- *Alectryon coriaceous* (Beach Birds Eye)
- *Banksia integrifolia* (Coastal Banksia)
- *Casuarina equisetifolia var. incana* (Coastal She-Oak)
- *Cuponiopsis anacardioides* (Tuckeroo)

Objectives:

Establish a new elevated dark horizon to support turtle sea-finding behaviour, amenity for coastal pathway users and local residents.

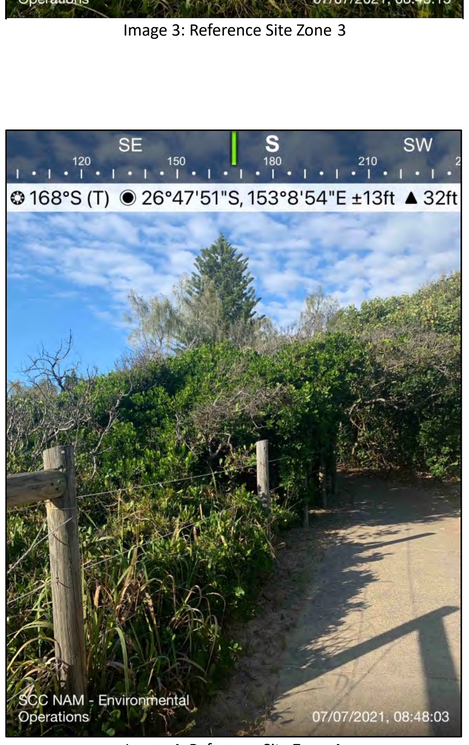

Image 4: Reference Site Zone 4

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 Geocentric Datum of Australia 2020

Environmental Operations
[w] http://maps.sunshinecoast.qld.gov.au
[e] eoadmin@sunshinecoast.qld.gov.au

Scale 1:150

A0

Contact: aw039
Last Printed: Tuesday, 18 April 2023

Management Principles

Adaptive and staged management approach (evidence-based decision making)

No reduction in height, transparency, or density of elevated dark horizon or compromise of dune stability.

Maintenance of turtle nesting habitat conditions.

*NB - Map is indicative only and subject to operational delivery requirements.

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3.4 Timing

The loggerhead turtle nesting season officially begins on 1 November, although most nesting on Shelly Beach (and the Sunshine Coast in general) occurs later than this. The works are likely to be completed in a period of 5 days, currently anticipated to be in September 2023 due to favourable tide conditions, subject to timely securing of environmental approvals.

3.5 Alternative Actions

A number of alternative actions have been considered over the course of the last few years:

- Some stakeholders have indicated a preference for removal of all cottonwood trees at once from the full extent of the dune system. This is not considered appropriate due to the risk of the resulting increase in light spill on the beach inhibiting sea-finding behaviour of the turtle hatchlings. Whilst there are other native species within the understory of the mid and hind dune system, these would likely take in order of 10 years of growth to reach the heights required to maintain the dark horizon at the current extent. The preferred way to avoid this sudden increase in light spill is to prune and thin the cottonwoods gradually whilst other species establish (other options such as the installation of man-made barriers is deemed to have too great an impact on the amenity of adjacent residents).
- Mechanical removal of the cottonwoods and marine couch from within the Pilot Study area may be more labour intensive than the use of chemicals and may result in the loss of sand entrained in root systems. However, chemical control of the vegetation is not considered a viable option as the chemicals can penetrate the porous shells of turtle eggs and affect the developing embryos. Other flora and fauna are also likely to be adversely affected.
- Not proceeding with the action could result in the loss of successful loggerhead breeding at North Shelly Beach altogether (if the cottonwoods continue to spread and degrade the fore dune habitat). This would particularly be a lost opportunity within the context of the likely increased importance of Sunshine Coast beaches for nesting turtles due to climate change effects (see **Section 6.3.2**).

4.0 Methodology

4.1 Desktop Assessment

A desktop assessment was undertaken to develop an understanding of the environmental values, landscape features, vegetation communities and threatened species that were known or had the potential to occur within the Pilot Study area and immediate surrounds. The following data sources were reviewed:

- Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) Protected Matters Search Tool (PMST) to identify potential MNES. Search results from April 2023 are included in **Appendix A**.
- DCCEEW's Species Profiles and Threats database (SPRAT);
- Queensland Department of Environment and Science (DES) WildNet database to identify previously recorded flora and fauna species, including non-native species. Search results from April 2023 are included in **Appendix A**.
- DES mapping for essential habitat, protected plants trigger areas, wetlands, watercourses and drainage features;
- Queensland Department of Resources (DoR) regulated vegetation mapping (including remnant, high-value regrowth and non-remnant vegetation);
- Atlas of Living Australia (ALA) database;
- High-resolution satellite imagery;
- Published ecological information on threatened flora and fauna species where available; and
- Information provided through consultation with acknowledged species experts, Action Groups, academics, etc.

The outputs from the desktop assessment are provided in **Appendix A**.

4.2 Field Assessment

It has not been necessary for Attexo to carry out specific field assessments to support the preparation of this referral, as the following assessments have already been undertaken or are planned to be undertaken soon:

- Vegetation assessment by Future Plus Environmental in June 2023 (see **Appendix C**);
- Sunshine Coast Council has run a monitoring program for nesting loggerhead turtles, including coordination of volunteers, since 2005;
- Collaboration with Griffith University to undertake physico-chemical analysis of the sand at Shelly Beach;
- An assessment of light spill and the resulting impacts on emerging turtle hatchlings.

4.3 Likelihood of Occurrence Assessment

As assessment was undertaken to determine the likelihood of occurrence within the Pilot Study area of conservation significant species (i.e. those listed under the EPBC Act and/or Queensland NC Act) that were predicted to occur as part of the desktop assessment. The likelihood of occurrence assessment was based on a review of species'

distributions and habitat requirements, historical records for the broader region, and the results of the Council-initiated habitat assessments and field surveys.

Definitions used for the likelihood of occurrence include:

- **Known** – species or ecological community has been recently recorded within the Pilot Study area or immediate surrounds (within the last 10 years);
- **Likely** – the Pilot Study area is within the species' or ecological community's known range and suitable habitat occurs;
- **Potential** – suitable habitat for the species or ecological community occurs in the broader region but only marginal habitat is available within the Pilot Study area and/or the species has not been recorded in the desktop assessment. This includes cryptic, vagrant or transient species that have a reduced likelihood of occurrence but cannot be definitively discounted;
- **Unlikely** - low to very low probability that the species or ecological community occurs in the broader region due to a lack of suitable habitat and/or the area is outside of the species' or community's known range.

The outputs of the likelihood of occurrence assessment are provided in **Appendix B**.

4.4 Assessment of Potential Impacts

An impact assessment has been undertaken in accordance with the Matters of National Environmental Significance – Significant Impact Guidelines 1.1 (DoE 2013). The methods provided within the Guidelines are intended to determine the level of significant impacts on MNES due to the proposed action. This is achieved through 'significant impact criteria' which are defined for identified values and vary according to the conservation status of each value.

The Significant Impact Guidelines (DoE 2013) provide overarching guidance on determining whether an action is likely to have a significant impact on a matter protected under the EPBC Act. The Significant Impact Guidelines consider the concepts defined in **Table 4-1** when assessing the significance of impacts to MNES:

Table 4-1 Key Concepts in the Significant Impact Guidelines (DoE 2013)

Concept	Definition
Habitat critical to the survival of a species	Areas that are necessary: • for activities such as breeding, roosting, foraging and dispersal; • for the long-term maintenance of the species; • to maintain genetic diversity and long-term evolutionary development; or • for the reintroduction of populations or recovery of the species. Such habitat may be identified in a recovery plan for a species and/or listed on the Register of Critical Habitat maintained by the Minister under the EPBC Act.
A population – this relates particularly to species listed as Endangered or Critically Endangered	A population is an occurrence of a species within a particular area, including but not limited to:

Concept	Definition
	• a geographically distinct regional population, or collection of local populations; or • a population or collection of local populations that occurs within a particular bioregion.
An important population – this relates particularly to species listed as Vulnerable	An important population is one that is necessary for species' long-term survival and recovery. This may include populations identified in recovery plans and/or that are: • key source populations for breeding or dispersal • populations that are necessary for maintaining genetic diversity; and/or • populations that are near the limit of the species range.
Important habitat for migratory species	This is defined as: • habitat used by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of a population of the species; and/or • habitat that is of critical importance to the species at a particular life stage; and/or • habitat used by a migratory species which is at the limit of the species' range; and/or • habitat within an area where the species is declining.
An ecologically significant proportion of the population of a migratory species	Listed migratory species include a broad range of species with different life cycles and population sizes. An 'ecologically significant proportion' of a population varies with the species based on factors such as the species' population status, genetic distinctiveness and species-specific behaviour patterns (such as site fidelity). A population of a migratory species means the entire population or any geographically separate part of the population of any species, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries including Australia.

5.0 Baseline Environment Description

5.1 General Description

Shelly Beach is a highly modified dune environment due to historic vegetation clearance for urban development, siting of the former Toolara Caravan Park, shell grit mining activities and dune re-establishment and tree planting activity. Both the dune profile and vegetation communities have been heavily altered and there is a total absence of hind dune in some areas. This is particularly the case in the north Shelly Beach section.

The primary objective of early rehabilitation activities at Shelly Beach was to stabilize the dune from coastal erosion processes, an action consistent with coastal management activities in the mid to late 1990s. Species used were available native species tolerant of coastal conditions – including cottonwood trees. Cottonwood tree is a native species to the Sunshine Coast and is a component of the Regional Ecosystem (RE 12.2.14), which the Queensland Herbarium advises is the appropriate pre-clearing vegetation for this dune system. It is likely that the cottonwood trees at North Shelly Beach have been planted to support dune stabilization and their current characteristics within the Shelly Beach dune system are considered to be "highly unusual" (Queensland Herbarium, personal communication).

In its current condition the vegetation, the species mix, and the profile and extent of the landscape are not characteristic of an established coastal dune. In particular, the prevalence and growth form of cottonwoods in the area is dominating the foredune vegetation community and limiting available space for turtle nesting habitat above the high tide mark.

Lot 9 on SP100298 is designated Public Use Land for Park Purposes. Council is the trustee of this land and is expected to manage and enhance the reserve in accordance with the purpose of the reserve – this includes coastal management practices.

The Pilot Study site is surrounded by beach, dune and conservation areas, recreation open space including the coastal path and behind that, private residences.

5.2 Matters of National Environmental Significance

5.2.1 World Heritage Sites and National Heritage Properties

There are no World Heritage Sites or National Heritage Properties that may potentially be affected by the proposed action.

5.2.2 Protected Area Estate

There are no Protected Area Estates that may potentially be affected by the proposed action.

5.2.3 Wetlands of International Importance

Wetlands of International importance are those that are listed under the Ramsar Convention. The nearest Ramsar wetland to the proposed action is Moreton Bay, the northern end of which is located approximately 8.6km away. The proposed action will not impact on the values of this wetland, either directly or indirectly.

5.2.4 Great Barrier Reef Marine Park

The Great Barrier Reef Marine Park is located approximately 300km to the north of the proposed action and will not be affected by the proposed action.

5.2.5 Commonwealth Marine Area

There are no Commonwealth Marine Areas that may potentially be affected by the proposed action.

5.2.6 Threatened Ecological Communities

The Protected Matters Search Tool (PMST) identified two Threatened Ecological Communities (TECs) that potentially occur within the project area (see **Appendix B**).

Vegetation surveys undertaken within the project area have confirmed that neither of these vegetation communities is present.

5.2.7 Threatened Flora Species

The PMST identified 15 listed threatened flora species that potentially occur within the project area (see **Appendix B**).

Vegetation surveys undertaken within the project area have confirmed that none of these species is currently present (see **Appendix C**).

5.2.8 Threatened Fauna Species

The PMST identified one listed threatened insect, two listed threatened amphibians, 32 listed threatened birds, 11 listed threated fish, 10 listed threatened mammals and eight listed threatened reptiles that may occur within the project area (see **Appendix B**). Note, many of the species included in the PMST outputs are wholly marine and have therefore been discounted from being present within the project area.

The following species are known or considered likely to occur based on current knowledge of the site:

- White-throated needletail, *Hirundapus caudacutus*, listed as Vulnerable and Migratory under the EPBC Act. This species has been recorded within 1km of the project site within the last 10 years ;
- Green turtle, *Chelonia mydas*, listed as Vulnerable and Migratory under the EPBC Act. This species has been recorded at Shelly Beach within the last 10 years; and
- Loggerhead turtle, *Caretta caretta*, listed as Endangered and Migratory under the EPBC Act. This species has been recorded annually at Shelly Beach for several decades.

The white-throated needletail is a non-breeding visitor to Australia and is almost exclusively aerial, soaring between 1 m and more than 1,000 m above the ground. It is most often recorded above wooded areas, including open forest and rainforest, and is also commonly recorded over heathland and coastal cliffs. Vegetation management within such a miniscule portion of this species' range will have negligible effects on the white-throated needletail and it is not considered further in this report.

5.2.9 Migratory Species

The PMST identified 65 listed migratory species that may occur within the project area (see **Appendix B**). Some of these are also listed threatened and are therefore addressed in the previous section. Those migratory species that are wholly marine (e.g. marine mammals and migratory fish) have been discounted from being present within the project area.

The following migratory species are known or considered likely to occur based on current knowledge of the site:

- Black-faced monarch, *Monarcha melanopsis*. This species has been recorded within 2km of the project area and marginal habitat exists within the project site;
- Common sandpiper, *Actitis hypoleucos*. This species has been recorded approximately 3.5km from the project area and suitable habitat exists within the project site;
- Fork-tailed swift, *Apus pacificus*. This species has been recorded approximately 4km from the project area and suitable habitat exists within the project site;
- Great frigatebird, *Fregata minor*. This species has been recorded approximately 2km from the project area and suitable habitat exists within the project site;
- Lesser frigatebird, *Fregata ariel*. This species has been recorded within 1km of the project area and suitable habitat exists within the project site;
- Osprey, *Pandion haliaetus*. This species was recorded within the project area in 2020 and has a nesting area approximately 500 m to the south of the project area on the Caloundra headland;
- Pacific golden plover, *Pluvialis fulva*. This species has been recorded approximately 2.5km from the project area and suitable habitat exists within the project site;
- Ruddy turnstone, *Arenaria interpres*. This species has been recorded within 1km the project area and suitable habitat exists within the project site;
- Rufous fantail, *Rhipidura rufifrons*. This species has been recorded approximately 2km from the project area and suitable habitat exists within the project site;
- Sharp-tailed sandpiper, *Calidris acuminata*. This species has been recorded within 1km of the project area and suitable habitat exists within the project site; and
- Streaked shearwater, *Calonectris leucomelas*. This species has been recorded within 1km of the project area and suitable habitat exists within the project site.

As with the white-throated needletail, vegetation management within such a miniscule portion of these species' ranges will have negligible effects on these migratory birds and they are not considered further in this report.

6.0 Loggerhead Turtle

6.1 Threat Status, Distribution, Population, Ecology and Habitat

The loggerhead turtle (*Caretta caretta*) is listed as Endangered under both the EPBC Act and the NC Act. It is listed globally as Vulnerable on the IUCN Red List, however the South Pacific sub-population (or Regional Management Unit, RMU), of which the Sunshine Coast population forms a part, is listed by the IUCN as Critically Endangered.

The loggerhead turtle has a global distribution throughout tropical, sub-tropical and temperate waters (DoE 2023a). Nesting is mainly concentrated on sub-tropical beaches with major aggregations occurring in Oman, eastern USA, southern Japan, Greece and Turkey, southern Queensland and Western Australia. In Australia the species occurs in the waters of coral and rocky reefs, seagrass beds and muddy bays throughout eastern, northern and western Australia (DoE 2023a).

The total population size of the loggerhead turtle is unknown. The most commonly used proxy for population abundance in marine turtles is the annual number of nests. A total of about 200,000 clutches are laid annually by the 10 sub-populations combined. Considering a range of 3 to 5.5 clutches per female, the above value would correspond to approximately 36,000-67,000 nesting females annually (Casale & Tucker 2017).

There is currently no population estimate available for the South Pacific sub-population (Casale & Tucker 2017). Based on the percentage of nesting females per year, approximately 2-4% of the global population could occur in Australia (DoE 2023a). Australia has two genetically distinct populations, eastern Australia and Western Australia, corresponding to different sub-populations as identified by the IUCN. In 2000 it was estimated that there were 500 nesting females per year in Eastern Australia, with adult females comprising approximately 20% of the population (DoE 2023a). The eastern Australian population has declined by an estimate 86% between 1977 and 2000 (DoE 2023a).

Loggerhead turtles nest on insular and mainland sandy beaches throughout the temperate and sub-tropical regions worldwide. Like most sea turtles, loggerheads are highly migratory and use a range of broadly separated localities and habitats during their lifetimes. Upon leaving the nesting beach, hatchlings begin an oceanic phase in major current systems that serve as open-ocean developmental grounds. After 4-19 years in the oceanic zone, loggerheads recruit to neritic developmental areas rich in benthic prey or epipelagic prey where they forage and grow until maturity at 10-39 years of age (typically 22-27 years for the eastern Australian stock, DoE 2023a), with a wide variety of tidal and sub-tidal habitat chosen as feeding areas (DoE 2023a). Upon attaining sexual maturity, loggerheads undertake breeding migrations between foraging grounds and nesting beaches at re-migration intervals of one to several years (mean of 2.5-3 years for females). Migrations are carried out by both males and females, and may traverse ocean zones spanning hundreds to thousands of kilometres. During non-breeding periods, adults reside at coastal neritic feeding areas that sometimes coincide with juvenile development habitats (DEE 2017, Casale & Tucker 2017).

Loggerhead turtles show strong philopatry, with female turtles returning to the beach on which they hatched in order to nest themselves (fidelity to feeding areas is also strong) (DoE 2023a). The female digs a deep hole in the sand with her flippers, lays the eggs and then covers them again with the excavated sand. Turtle egg shells are porous, so chemicals within the sand may penetrate the shells and affect the development of the embryos. Turtle sex ratios are also affected by the temperature of the sand: a temperature of ≤ 28°C results in males, 30°C means there are equal chances of a turtle being male or female, and ≥ 32°C results in females (CMS undated).

Marine turtles are of enormous practical, cultural and spiritual significance to the tradition custodians for the land and sea country within which the project area is located (SCC 2023).

6.2 Known Threats

Globally, the loggerhead turtle's range overlaps with many commercial and artisanal fisheries and the main threat is therefore incidental capture through entanglement in gill nets, trawling, and longline and pot fishing (DoE 2023a, Casale & Tucker 2017, DEE 2017). Habitat loss and degradation, mainly due to coastal development on nesting beaches, is also a key threat and the one that is most relevant to the Project area. In some parts of the world, egg collection and Indigenous hunting is also threatening the species.

International threats such as turtle hunting (Indonesia and South Pacific Islands), egg collection (New Caledonia) and high seas fishing are known to impact Australian loggerhead turtles (DoE 2023a). Injury and fatality as a result of ingestion of or entanglement with marine debris is also listed as a threatening process under the EPBC Act (DoE 2023a).

SPRAT (DoE 2023a) lists the following threat abatement plans as being relevant to this species:

- Threat Abatement Plan for Predation, Habitat Degradation, Competition and Disease Transmission by Feral Pigs (Sus scrofa) (DEE 2017a);
- Threat Abatement Plan for the Impacts of Marine Debris on the Vertebrate Wildlife of Australia's Coasts and Oceans (DEE 2018a); and
- Threat Abatement Plan for Predation by the European Red Fox (DEWHA2008).

Specifically on the Sunshine Coast, the most significant threats to loggerhead turtles have been identified as altered temperatures from climate change, urban light pollution, terrestrial predation, entanglement by and ingestion of marine debris, habitat modification, recreational activities, accidental death as fisheries by-catch, chemical and terrestrial discharge, and vessel disturbance (SCC 2023).

6.3 Nesting Status at Shelly Beach

Low density and sporadic nesting currently occurs along the Sunshine Coast (DoE 2023a). Whilst all Sunshine Coast beaches have the potential for turtle nests, there are physical conditions which favour some nesting beaches. Buddina and Shelly Beach typically record many more nests than other Sunshine Coast beaches, as illustrated in **Figure 6-1**. The area from Pumicestone Passage to Double Island Point, which includes the project area, has been identified as "habitat critical to the survival of" the loggerhead turtle (SCC 2023, DEE 2017) and is also a designated biologically important area for the species (DSEWPC 2012).

Shelly Beach is identified by the State Government as the index beach for the entire Sunshine Coast loggerhead turtle rookery, and was first studied in the 1970s. Index beaches are those that have been identified by marine turtle managers as important for long-term monitoring and are representative of the stock. They provide the information on which to determine a species' conservation status. Index beaches require a statistically relevant numbers of individuals nesting and consideration is given to economics of scale including the presence of multiple species, feasibility for monitoring (physical access to the location and cost) and ability to repeat observations (DEE 2017).

Figure 6-1 Important Nesting Beaches on the Sunshine Coast

Climate change currently affects, and will increasingly affect, sea and land temperatures. This is particularly important to loggerhead turtles as their development is intricately linked to temperature. As temperatures are predicted to rise, there is a growing concern (and already some evidence) that too many females will be born, skewing the sex ratios and eventually reaching a situation whereby there are not enough males for successful reproduction of the population (Casale & Tucker 2017, CMS undated).

Another future scenario is one where the sand temperatures on the nesting beach are too high for proper development of the embryos. Nest temperatures of > 34°C are considered to increase the probability of hatchling mutation, in many cases resulting in the hatchlings' inability to reach adulthood (Casale & Tucker 2017, CMS undated).

Warmer ocean temperatures are also likely to have a negative impact on the prey of sea turtles, leading to a long-term decreased in food supply. This could reduce the turtles' resilience. Loggerhead turtles are ectothermic (which means their body temperature depends on external sources), therefore it is probable that individual metabolic rates will also increase with warmer sea surface temperatures in the foraging rounds, requiring more food to sustain them (CMS undated).

An additional concern is that thermal expansion and the melting of the icecaps will cause further sea level rise, resulting in the inundation and effective loss of loggerhead turtles' nesting habitat. It has been estimated that rising sea levels will result in the loss of up to half the existing nesting sites. As coastal water tables rise simultaneously with the sea level, the loggerhead turtles' nests risk being flooded from below. The limitation of oxygen available to eggs can easily result in the drowning of developing embryos. Similarly, the increased incidence and intensity of tropical storms could have a negative impact on the moisture levels of the beach nests. Increased rainfall during the incubation period will also disturb nest temperatures and pose a significant risk of nests being washed away (Casale & Tucker 2017, CMS undated).

Sunshine Coast beaches are generally cooler than the more northern nesting beaches (because of southern latitude, light sand colour and natural vegetation shading) and have elevated back dunes with potential to provide refugial nesting habitat under future sea level rise and retreating shoreline scenarios. These beaches therefore produce a higher proportion of the male hatchlings that are essential for the long-term recovery of turtle populations. With the southern-most nesting population, Sunshine Coast beaches are potentially the leading edge of a climate-driven southern range expansion (a potential steppingstone for population adaptation to climate change) (SCC 2023).

6.4 Potential Impacts and Relevant Mitigation

The proposed action has the potential to cause disturbance to nesting loggerhead turtles. To avoid the risk of any disturbance, the vegetation management works have been planned to be undertaken outside the loggerhead turtle's nesting season (which broadly commences on 1 November, although is often later than that on the Sunshine Coast), when the animals are entirely oceanic.

A small area (c. 521m^2) has been chosen for the Pilot Study in order to better understand how the dune system will respond to the proposed vegetation management actions prior to undertaking these actions over a larger area.

The Pilot Study area will need to be fenced off for approximately 18 months after removal of the cottonwoods, in order for the sand to resettle. The area will not be available for turtle nesting during that time, anticipated to be two nesting seasons. For this reason, an area that is currently the least suitable section of Shelly Beach for loggerhead nesting (because of the virtual dominance of cottonwoods) has been selected for the Pilot Study. The most frequently used nesting areas (to the north of the Pilot Study site) will not be impacted by any disturbance.

The mechanical removal of vegetation from the dune system has the potential to increase light spill onto Shelly Beach, and therefore potentially inhibit sea-finding behaviour of hatchlings, if appropriate controls are not in place. For this reason, it is proposed to only remove cottonwoods from the foredune area initially, where they are not contributing to the dark horizon. Further up the dune, the cottonwoods will be pruned rather than removed all at once, in order to allow other native vegetation species in the understory to grow taller and start to contribute to the dark horizon. Infill planting will also be undertaken using appropriate native species.

Offsets are not considered necessary as the intention is for the project to have a **positive impact** on the loggerhead turtle.

6.5 Assessment of Significant Residual Impacts

The project is likely to have a significant **positive** impact on the loggerhead turtle (Endangered). A full significance assessment is following the Significant Impact Guidelines (DoE 2013) is presented in **Table 6-1**.

Table 6-1 Significant Residual Impact Assessment – Loggerhead Turtle

Significant Impact Criteria	Project Outcome
Lead to a long-term decrease in the size of a population	**Unlikely** The area selected for the Pilot Study is small (c. 100m^2) and currently unsuitable for loggerhead nesting due to the virtual monoculture of cottonwood trees. Nesting to the north and south of the Pilot Study will be unaffected by the proposed action.
Reduce the area of occupancy of the species	**Unlikely** The area selected for the Pilot Study is small (c. 100m^2) and currently unsuitable for loggerhead nesting due to the virtual monoculture of cottonwood trees. Nesting to the north and south of the Pilot Study will be unaffected by the proposed action.
Fragment an existing population into two or more populations	**Unlikely** The proposed action will not fragment the Eastern Australian population of loggerhead turtles.
Adversely affect habitat critical to the survival of a species	**Unlikely** The objective of the action is to **improve** the habitat for nesting loggerhead turtles at Shelly Beach, which has been identified as habitat critical to the survival of the species.
Disrupt the breeding cycle of a population	**Unlikely** The area selected for the Pilot Study is small (c. 521m^2) and currently unsuitable for loggerhead nesting due to the virtual monoculture of cottonwood trees. Nesting to the north and south of the Pilot Study will be unaffected by the proposed action.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	**Unlikely** The objective of the action is to **improve** the habitat for nesting loggerhead turtles in order to support the species' recovery.
Result in invasive species that are harmful to the critically endangered or endangered species becoming established in the critically endangered or endangered species' habitat	**Unlikely** Vegetation management actions will be undertaken by Council staff following stringent weed and pest protocols.
Introduce disease that may cause the species to decline	**Unlikely** Vegetation management actions will be undertaken by Council staff following stringent disease control protocols.
Interfere with the recovery of the species	**Unlikely** The objective of the action is to improve the habitat for nesting loggerhead turtles in order to **support the species' recovery**.

7.0 Green Turtle

7.1 Threat Status, Distribution, Population, Ecology and Habitat

The green turtle (*Chelonia mydas*) is listed as Vulnerable under both the EPBC Act and the NC Act. It is listed globally as Endangered on the IUCN Red List (Seminoff 2004).

The green turtle has a circum-global distribution, occurring in tropical and subtropical waters throughout the world. The species usually remains within the 20°C isotherms, although individuals may also stray into temperate waters (Seminoff 2004, DoE 2023c).

Green turtles nest, forage and migrate across tropical northern Australia. In Queensland, the key nesting and inter-nesting areas (where females live between laying successive clutches in the same season) are:

- Capricorn and Bunker Island Groups;
- Raine Island;
- Curtis Island and Facing Island;
- Russel Island and Scott Reef;
- Wellesley Islands;
- Milman Islet and Boydong Islands;
- Mon Repos;
- Murray Islands;
- Darnely Island (Torres Strait);
- Bramble Cay (Torres Strait);
- Western Cape York Peninsula;
- Pisonia Island; and
- North and South Bountiful Islands (DoE 2023c).

The important foraging grounds and juvenile habitat for green turtles in Queensland include the Capricorn and Bunker region of the Great Barrier Reef, the Wellesley Islands, Moreton Bay, Hervey Bay and Sandy Straits, Shoalwater Bay, Cleveland Bay, Princess Charlotte Bay, the inner shelf coral reefs from Howick Reef to Corbett Reef, and the Torres Strait (DoE 2023c).

The global population of green turtles is estimated to be very large (2.2 million, DoE 2023c) and most populations (with the exception of Indonesia) are thought to be increasing. The total Australian population of green turtles is estimated to be more than 70,000 individuals, distributed across seven regional populations that are thought to represent genetically distinct sub-populations with a very low level of genetic exchange between regions (DoE 2023c). The seven regional sub-populations can be further subdivided into 17 genetically distinguishable breeding stocks (also referred to as 'management units'), consisting of individual rookeries (breeding colonies) or groups of rookeries that are generally more than 500 km apart (DoE 2023c). Green turtles present within the project area would form part of the breeding stock referred to as the 'Southern Great Barrier Reef Stock' (DoEE 2017b, SCC 2023).

Like most marine turtles, green turtles are highly migratory and use a wide range of broadly separate localities and habitats during their lifetimes (Seminoff 2004). Green turtles spend their first five to ten years drifting on ocean currents. During this pelagic phase, they are often found in association with driftlines and rafts of *Sargassum* (a floating marine plant that is carried by currents). Once they have reached a certain size, they settle in shallow benthic foraging habitats such as tropical tidal and sub-tidal coral and rocky reef habitat or inshore seagrass beds, where they forage until they reach maturity (Seminoff 2004, DoE 2023c). The shallow foraging habitats of adults contain seagrass beds or algae mats on which green turtles mainly feed (DoE 2023c). The green turtle is mostly herbivorous. The adults feed mostly on various species of seagrasses and algae, although they will occasionally eat mangroves, fish-egg cases and sponges. Green turtles provide an important ecosystem function by biting off the tips of the seagrass blades, which keeps the grass healthy (ALA). Young turtles tend to be more carnivorous than adults (DoE 2023c).

Both male and female green turtles can migrate more than 2,600 km between their feeding and nesting grounds. The average migration distance of turtles nesting on the Great Barrier Reef is approximately 400 km (Seminoff 2004, DoE 2023c).

To develop successfully, marine turtle eggs must be buried in sand that is aerated (but not exposed), low in salt, high in humidity (but not flooded), and between 25°C and 33°C. The sex of the hatchling is determined by the temperature of the nest, with nests at or below 26°C producing all male hatchlings, and nests at or above 29°C producing all female hatchlings. Nests with intermediate temperatures produce mixed sex hatchlings, depending on the position, and therefore temperature, of individual eggs (DoE 2023c).

During non-breeding periods, adults reside at coastal neritic feeding areas that sometimes coincide with juvenile developmental habitats (Seminoff 2004). Breeding male and female green turtles move from their feeding grounds to areas near nesting beaches for mating. The males then return to their feeding grounds, and the females come up on the beach to lay their eggs, usually on several different nights (DoE 2023c).

In the southern Great Barrier Reef, mating begins in September and nesting occurs between October and April, peaking in late December / early January (DEE 2017b). Females lay an average of five clutches of around 115 eggs per season. Female turtles breed every one to nine years. The number of females breeding each year is correlated with the Southern Oscillation index, which determines sea surface temperature (DoE 2023c). Most females will return to the same nesting area between seasons and to the same beach within a nesting season (Queensland Government, 2020).

The principal index beach for the sGBR green turtle in Queensland is at Heron Island. This index beach has shown an upward trend in green turtle nesting (a threefold increase in the annual nesting population after approximately one generation since closure of commercial harvesting in 1950). This is one of the few green turtle populations in the world that is showing a strong increase in response to conservation measures (Queensland Government 2020).

7.2 Known Threats

In Australia, the main current threats to green turtles are disturbance (e.g. light disturbance) and habitat damage due to coastal development, by-catch from fisheries and shark control measures, predation on nests, boat strikes, entanglement and ingestion of marine debris and, in some areas, indigenous harvesting. Potential threats include changes to the sea surface temperature, particularly changes to the Southern Oscillation Index (which determines breeding intervals), chance disasters (e.g. oil spills) and feral predator invasions (DoE 2023c). These impacts work in combination to diminish the health of coastal marine ecosystems and may, in turn, adversely affect green turtles. For example, the degradation of marine habitat has been implicated in the increasing prevalence of the tumour-causing Fibropapilloma disease (Seminoff 2004).

As with the loggerhead turtle, the temperature of the nest affects the sex ratio of green turtle hatchlings. Cooler, more shaded beaches produce more males while warmer, sunny beaches produce more females. Beaches become

heated when cleared of coastal forest or when heat-absorbing sand is imported for beach nourishment, as well as through global climate change. These changes result in female-biased populations. Climate change scenarios predict reduced nesting habitat for sea turtles through rising sea levels and increased storm erosion. Changing ocean circulation may also disrupt the ocean-going phase of juveniles green turtles, and the predicted increase in coral bleaching and burning of seagrass habitat will reduce their food resources. Sea surface temperatures also have major effects on the frequency of sea turtle breeding. Changes to the Southern Oscillation Index will have a major effect on Australian breeding populations of green turtles (DoE 2023c).

Large numbers of green turtle strandings along the Queensland coast in 2010-11 and again in Hervey Bay in 2022/23 were attributed to pulse flooding after extreme weather events which damaged seagrass (their main food source). These events are predicted to increase as a result of climate change (Queensland Government 2020, DoEE 2017b).

SPRAT (DoE 2023b) lists the following threat abatement plans as being relevant to this species:

- Threat Abatement Plan for Predation, Habitat Degradation, Competition and Disease Transmission by Feral Pigs (Sus scrofa) (DoEE 2017a);
- Threat Abatement Plan for the Impacts of Marine Debris on the Vertebrate Wildlife of Australia's Coasts and Oceans (DoEE 2018); and
- Threat Abatement Plan for Predation by the European Red Fox (DEWHA 2008).

Specifically on the Sunshine Coast, the most significant threats to green turtles have been identified as altered temperatures from climate change, urban light pollution, terrestrial predation, entanglement by and ingestion of marine debris, habitat modification, recreational activities, accidental death as fisheries by-catch, chemical and terrestrial discharge, and vessel disturbance (SCC 2023).

7.3 Nesting Status at Shelly Beach

Low density and sporadic nesting by green turtles currently occurs along the Sunshine Coast (SCC 2023). As with the loggerhead turtle, Buddina and Shelly Beach typically record more nests than any other Sunshine Coast beaches. There has been one confirmed green turtle nesting event formally recorded on Shelly Beach within the last decade. Moreton Bay, to the south of the project area, has been identified as a Biologically Important Area for year-round foraging by green turtles (DoEE 2017b).

As with the loggerhead turtle, the relative importance of Sunshine Coast beaches for nesting green turtles is anticipated to increase under climate change scenarios (SCC 2023).

7.4 Potential Impacts and Relevant Mitigation

The proposed action has the potential to cause disturbance to nesting green turtles. To avoid the risk of any disturbance, the vegetation management works have been planned to be undertaken outside the green turtle's nesting season (which broadly commences in October), when the animals are entirely oceanic.

A small area (c. 521 m^2) has been chosen for the Pilot Study in order to better understand how the dune system will respond to the proposed vegetation management actions prior to undertaking these actions over a larger area.

The Pilot Study area will need to be fenced off for approximately 18 months after removal of the cottonwoods, in order for the sand to resettle. The area will not be available for turtle nesting during that time, anticipated to be two nesting seasons. For this reason, an area that is currently the least suitable section of Shelly Beach for turtle nesting (because of the virtual dominance of cottonwoods) has been selected for the Pilot Study. The most frequently used nesting areas (to the north of the Pilot Study site) will not be impacted by any disturbance.

The mechanical removal of vegetation from the dune system has the potential to increase light spill onto Shelly Beach, and therefore potentially inhibit sea-finding behaviour of hatchlings, if appropriate controls are not in place. For this reason, it is proposed to only remove cottonwoods from the foredune area initially, where they are not contributing to the dark horizon. Further up the dune, the cottonwoods will be pruned rather than removed all at once, in order to allow other native vegetation species in the understory to grow taller and start to contribute to the dark horizon. Infill planting will also be undertaken using appropriate native species.

Offsets are not considered necessary as the project is anticipated to have a **positive impact** on the green turtle.

7.5 Assessment of Significant Residual Impacts

The project is anticipated to have a significant **positive** impact on the green turtle (Vulnerable). A full significance assessment is following the Significant Impact Guidelines (DoE 2013) is presented in **Table 7-1**.

An 'important population' is a population that is necessary for the species' long-term survival and recovery. This may include populations identified as such in recovery plans and/or those that are:

- Key source populations either for breeding or dispersal;
- Populations that are necessary for maintaining genetic diversity; and/or
- Populations that are near the limit of the species' range.

For the purposes of this referral, it is assumed that the population of green turtles that are present in the project area are part of an **important population** as they comprise individuals that would also forage within the Moreton Bay Biologically Important Area for year-round foraging green turtles (DoEE 2017b).

Table 7-1 Significant Residual Impact Assessment – Green Turtle

Significant Impact Criteria	Project Outcome
Lead to a long-term decrease in the size of an important population of a species	**Unlikely** The area selected for the Pilot Study is small (c. 100m^2) and currently unsuitable for green turtle nesting due to the virtual monoculture of cottonwood trees. Nesting to the north and south of the Pilot Study will be unaffected by the proposed action.
Reduce the area of occupancy of an important population of the species	**Unlikely** The area selected for the Pilot Study is small (c. 521 m^2) and currently unsuitable for green turtle nesting due to the virtual monoculture of cottonwood trees. Nesting to the north and south of the Pilot Study will be unaffected by the proposed action.
Fragment an existing important population into two or more populations	**Unlikely** The proposed action will not fragment the southern Great Barrier Reef population of green turtles.
Adversely affect habitat critical to the survival of a species	**Unlikely** The project area has not been identified as habitat critical to the survival of the green turtle. Nonetheless, the objective of the action is to **improve** the habitat for nesting turtles at Shelly Beach.

Significant Impact Criteria	Project Outcome
Disrupt the breeding cycle of an important population	**Unlikely** The area selected for the Pilot Study is small (c. 521 m^2) and currently unsuitable for green turtle nesting due to the virtual monoculture of cottonwood trees. Nesting to the north and south of the Pilot Study will be unaffected by the proposed action.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	**Unlikely** The objective of the action is to **improve** the habitat for nesting turtles in order to support the species' recovery.
Result in invasive species that are harmful to a vulnerable species becoming established in the species' habitat	**Unlikely** Vegetation management actions will be undertaken by Council staff following stringent weed and pest protocols.
Introduce disease that may cause the species to decline	**Unlikely** Vegetation management actions will be undertaken by Council staff following stringent disease control protocols.
Interfere substantially with the recovery of the species	**Unlikely** The objective of the action is to improve the habitat for nesting green turtles in order to **support the species' recovery**.

8.0 Consistency with Relevant Plans Prepared under the EPBC Act

The Pilot Study has been assessed for consistency with the following plans prepared under the EPBC Act, see **Table 6-2**:

- Recovery Plan for Marine Turtles in Australia (DoEE 2017b); and
- Marine Bioregional Plan for the Temperate East Marine Region (DSEWPAC 2012).

Table 8-1 Project Consistency with Plans Prepared under the EPBC Act

Plan Prepared under the EPBC Act	Background to the Issue	Objectives of the Plan	Project Response
Recovery Plan for Marine Turtles in Australia	Marine turtles are found throughout Australia's marine environment. Australia has some of the largest marine turtle nesting rookeries in the Indo-Pacific region. There are a range of anthropogenic threats that may inhibit the recovery of Australian marine turtles. While the Recovery Plan considers these threats in isolation, for most of the identified marine turtle stocks, it is the cumulative impacts of multiple threats that need to be addressed to secure their recovery.	The long-term recovery objective for marine turtles is to minimise anthropogenic threats to allow for the conservation status of marine turtles to improve, so that they can be removed from the EPBC Act threatened species list. Recognising that the over-arching objective is unlikely to be achieved during the life of the plan due to the long lifecycles and late maturation of marine turtles, interim recovery objectives and associated targets have been developed: • Interim Objective 1: current levels of legal and management protection for marine turtle species are maintained or improved, both domestically and throughout the migratory range of Australia's marine turtles • Interim Objective 2: the management of marine turtles is supported • Interim Objective 3: anthropogenic threats are demonstrably minimised • Interim Objective 4: trends in nesting numbers at index beaches and	The project will directly contribute to Interim Objectives 2 and 3, as well as the cited priority actions for both loggerhead and green turtles. The project is therefore **consistent** with the Recovery Plan for Marine Turtles in Australia.

Plan Prepared under the EPBC Act	Background to the Issue	Objectives of the Plan	Project Response
		population demographics at important foraging grounds are described. Specifically in relation to the green turtle, the Recovery Plan lists a priority action of "*Identify and protect suitable beaches and islands that could be used as nesting habitat under a rising sea level model / scenario, to ensure that these are suitable for colonisation in the future*". Specifically in relation to the loggerhead turtle, the Recovery Plan lists the following priority action: • "*Manage artificial light from onshore and offshore sources to ensure that biologically important behaviour of nesting adults and dispersing hatchlings can continue;* • *Identify potential nesting and foraging area and ensure they are being protected and managed to provide refugia and range expansion opportunities*".	
Marine Bioregional Plan for Temperate East Region	The Temperate East Marine Bioregional Plan aims to strengthen the operation of the EPBC Act in the region to help ensure that the marine environment remains	Biologically important areas are areas that are particularly important for the conservation of protected species and where aggregations of individuals display	The project is located within a biologically important nesting area for loggerhead turtles. The Pilot Study has been designed in such a way as to ensure no increased

Plan Prepared under the EPBC Act	Background to the Issue	Objectives of the Plan	Project Response
	healthy and resilient. The plan will be used by government and industry to improve the way the marine environment is managed and protected. The Temperate East Marine Region covers the Commonwealth marine area extending from the southern boundary of the Great Barrier Reef Marine Park to Bermagui in southern New South Wales, as well as the waters surrounding Lord Howe and Norfolk islands. The plan does not cover state or territory waters but, where relevant, does include information about inshore environments and the way they interact with species and habitats of the Commonwealth marine area.	biologically important behaviour such as breeding, foraging, resting or migration. Biologically important areas have been identified for loggerhead turtles in the Temperate East Marine Region and include: • The coastline between Bustard Head, QLD and Ballina, NSW for nesting, with an inter-nesting buffer of 20km (November to February. This incorporates the project area; and • Mon Repos Conservation Park – Woongara Coast for nesting, with an inter-nesting buffer of 20km (November to February). Biologically important areas have also been identified for green turtles: • Mon Repos Conservation Park for nesting, with an inter-nesting buffer of 20km (November to February); and • Moreton Bay for foraging (year round) – this site is approximately 10 km to the south of the project area. The Bioregional Plan identifies that actions that have a very high risk of a	light spill onto Shelly Beach (as may have been the case with one of the alternative actions considered, of removing more / all of the cottonwood trees at a time), and will not result in any of the other risks identified in the plan. The project is **consistent** with the Temperate East Marine Bioregional Plan.

Plan Prepared under the EPBC Act	Background to the Issue	Objectives of the Plan	Project Response
		significant impact on the loggerhead turtle include: • Actions that have a real chance or possibility of resulting in an increased in collision with vessels Actions that have a high risk of a significant impact on both the loggerhead and the green turtle include: • Actions that have a real chance or possibility of resulting in an increase in lighting at important nesting sites during breeding seasons, e.g. ports; • Actions such as dredging, that have a real chance or possibility of modifying, destroying or decreasing the availability of habitat for the species; • Actions that have a real chance or possibility of changing the water quality of, increasing nutrient pollution of, or introducing contaminants into biologically important areas; • Actions that have a real chance or possibility of leading to the introduction of invasive species into biologically important areas.	

Plan Prepared under the EPBC Act	Background to the Issue	Objectives of the Plan	Project Response
		Actions with a real chance or possibility of resulting in an increase in collision with vessels have a high risk of a significant impact on the green turtle. Actions that have a real chance or possibility of introducing marine debris to the biologically important areas of the loggerhead and the green turtle have a risk of significant impact on these species. Actions that introduce a new source from which a severe oil spill or other chemical pollution has a reasonable potential of arising (e.g. drilling) have a risk of significant impact on both the loggerhead and the green turtle.	

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Appendix A

Desktop Results

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 24-Apr-2023

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	79
Listed Migratory Species:	65

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	96
Whales and Other Cetaceans:	13
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	1

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	4
Key Ecological Features (Marine):	None
Biologically Important Areas:	5
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands) [Resource Information]

Ramsar Site Name	Proximity
Moreton bay	Within 10km of Ramsar site

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area
Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions	Endangered	Community may occur within area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text
null		
Mordacia praecox		
Non-parasitic Lamprey, Precocious Lamprey [81530]	Endangered	Species or species habitat may occur within area
BIRD		
Anthochaera phrygia		
Regent Honeyeater [82338]	Critically Endangered	Species or species habitat likely to occur within area
Botaurus poiciloptilus		
Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat likely to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat may occur within area
Cyclopsitta diophthalma coxeni Coxen's Fig-Parrot [59714]	Critically Endangered	Species or species habitat may occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat likely to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Fregetta grallaria grallaria White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian) [64438]	Vulnerable	Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area
Pterodroma neglecta neglecta Kermadec Petrel (western) [64450]	Vulnerable	Foraging, feeding or related behaviour may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Sternula nereis nereis		
Australian Fairy Tern [82950]	Vulnerable	Species or species habitat may occur within area
Thalassarche carteri		
Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta		
Shy Albatross [89224]	Endangered	Species or species habitat may occur within area
Thalassarche impavida		
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris		
Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini		
Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi		
White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area
Turnix melanogaster		
Black-breasted Button-quail [923]	Vulnerable	Species or species habitat likely to occur within area
FISH		
Epinephelus daemelii		
Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat may occur within area
Hippocampus whitei		
White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]	Endangered	Species or species habitat likely to occur within area
Nannoperca oxleyana		
Oxleyan Pygmy Perch [64468]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
[Pseudomugil mellis](#) Honey Blue Eye, Honey Blue-eye [26180]	Vulnerable	Species or species habitat may occur within area
[Thunnus maccoyii](#) Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat likely to occur within area
FROG		
[Litoria olongburensis](#) Wallum Sedge Frog [1821]	Vulnerable	Species or species habitat may occur within area
[Mixophyes fleayi](#) Fleay's Frog [25960]	Endangered	Species or species habitat may occur within area
INSECT		
[Argynnis hyperbius inconstans](#) Australian Fritillary [88056]	Critically Endangered	Species or species habitat may occur within area
MAMMAL		
[Balaenoptera musculus](#) Blue Whale [36]	Endangered	Species or species habitat may occur within area
[Chalinolobus dwyeri](#) Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area
[Dasyurus hallucatus](#) Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat likely to occur within area
[Dasyurus maculatus maculatus (SE mainland population)](#) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area
[Eubalaena australis](#) Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Petauroides volans		
Greater Glider (southern and central) [254]	Endangered	Species or species habitat likely to occur within area
Petaurus australis australis		
Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat may occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)		
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat likely to occur within area
Potorous tridactylus tridactylus		
Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat likely to occur within area
Pteropus poliocephalus		
Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
PLANT		
Acacia attenuata		
[10690]	Vulnerable	Species or species habitat likely to occur within area
Acronychia littoralis		
Scented Acronychia [8582]	Endangered	Species or species habitat may occur within area
Arthraxon hispidus		
Hairy-joint Grass [9338]	Vulnerable	Species or species habitat likely to occur within area
Bosistoa transversa		
Three-leaved Bosistoa, Yellow Satinheart [16091]	Vulnerable	Species or species habitat likely to occur within area
Cryptocarya foetida		
Stinking Cryptocarya, Stinking Laurel [11976]	Vulnerable	Species or species habitat may occur within area
Cryptostylis hunteriana		
Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Eucalyptus conglomerata		
Swamp Stringybark [3160]	Endangered	Species or species habitat may occur within area
Macadamia integrifolia		
Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat may occur within area
Macadamia ternifolia		
Small-fruited Queensland Nut, Gympie Nut [7214]	Vulnerable	Species or species habitat may occur within area
Phaius australis		
Lesser Swamp-orchid [5872]	Endangered	Species or species habitat likely to occur within area
Planchonella eerwah		
Shiny-leaved Condoo, Black Plum, Wild Apple [17340]	Endangered	Species or species habitat may occur within area
Rhodamnia rubescens		
Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat likely to occur within area
Rhodomyrtus psidioides		
Native Guava [19162]	Critically Endangered	Species or species habitat likely to occur within area
Samadera bidwillii		
Quassia [29708]	Vulnerable	Species or species habitat likely to occur within area
Thesium australe		
Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area
REPTILE		
Caretta caretta		
Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas		
Green Turtle [1765]	Vulnerable	Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Coeranoscincus reticulatus		
Three-toed Snake-tooth Skink [59628]	Vulnerable	Species or species habitat may occur within area
Delma torquata		
Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area
Dermochelys coriacea		
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata		
Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Lepidochelys olivacea		
Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known to occur within area
Natator depressus		
Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
SHARK		
Carcharias taurus (east coast population)		
Grey Nurse Shark (east coast population) [68751]	Critically Endangered	Species or species habitat likely to occur within area
Carcharodon carcharias		
White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
Pristis zijsron		
Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding may occur within area
Rhincodon typus		
Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Sphyrna lewini		
Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area

Listed Migratory Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		

Scientific Name	Threatened Category	Presence Text
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat likely to occur within area
Ardenna grisea Sooty Shearwater [82651]		Species or species habitat may occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area
Sternula albifrons Little Tern [82849]		Species or species habitat may occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area
Migratory Marine Species		
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Dugong dugon Dugong [28]		Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Eubalaena australis as Balaena glacialis australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known to occur within area
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat known to occur within area
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Species or species habitat may occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding may occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Sousa sahulensis as Sousa chinensis Australian Humpback Dolphin [87942]		Breeding known to occur within area
Migratory Terrestrial Species		
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
[Symposiachrus trivirgatus as Monarcha trivirgatus](#) Spectacled Monarch [83946]		Species or species habitat known to occur within area
Migratory Wetlands Species		
[Actitis hypoleucos](#) Common Sandpiper [59309]		Species or species habitat known to occur within area
[Arenaria interpres](#) Ruddy Turnstone [872]		Foraging, feeding or related behaviour known to occur within area
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area
[Calidris canutus](#) Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat likely to occur within area
[Charadrius leschenaultii](#) Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area
[Gallinago hardwickii](#) Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area
[Gallinago megala](#) Swinhoe's Snipe [864]		Foraging, feeding or related behaviour likely to occur within area

Scientific Name	Threatened Category	Presence Text
Gallinago stenura Pin-tailed Snipe [841]		Foraging, feeding or related behaviour likely to occur within area
Limnodromus semipalmatus Asian Dowitcher [843]		Species or species habitat may occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Foraging, feeding or related behaviour likely to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Foraging, feeding or related behaviour known to occur within area
Tringa incana Wandering Tattler [831]		Foraging, feeding or related behaviour known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Bird		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area overfly marine area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
Ardenna carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat likely to occur within area
Ardenna grisea as Puffinus griseus Sooty Shearwater [82651]		Species or species habitat may occur within area
Arenaria interpres Ruddy Turnstone [872]		Foraging, feeding or related behaviour known to occur within area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area overfly marine area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area overfly marine area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area
Diomedea antipodensis gibsoni as Diomedea gibsoni Gibson's Albatross [82270]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area overfly marine area
Gallinago megala Swinhoe's Snipe [864]		Foraging, feeding or related behaviour likely to occur within area overfly marine area
Gallinago stenura Pin-tailed Snipe [841]		Foraging, feeding or related behaviour likely to occur within area overfly marine area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area
Limnodromus semipalmatus Asian Dowitcher [843]		Species or species habitat may occur within area overfly marine area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius minutus Little Curlew, Little Whimbrel [848]		Foraging, feeding or related behaviour likely to occur within area overfly marine area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Foraging, feeding or related behaviour known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Rostratula australis as Rostratula benghalensis (sensu lato)		
Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area overfly marine area
Sternula albifrons as Sterna albifrons		
Little Tern [82849]		Species or species habitat may occur within area
Symposiachrus trivirgatus as Monarcha trivirgatus		
Spectacled Monarch [83946]		Species or species habitat known to occur within area overfly marine area
Thalassarche carteri		
Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta		
Shy Albatross [89224]	Endangered	Species or species habitat may occur within area
Thalassarche impavida		
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris		
Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini		
Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi		
White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area
Tringa incana as Heteroscelus incanus		
Wandering Tattler [831]		Foraging, feeding or related behaviour known to occur within area

Scientific Name	Threatened Category	Presence Text
[Tringa nebularia](#) Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area overfly marine area
Fish		
[Acentronura tentaculata](#) Shortpouch Pygmy Pipehorse [66187]		Species or species habitat may occur within area
[Campichthys tryoni](#) Tryon's Pipefish [66193]		Species or species habitat may occur within area
[Corythoichthys amplexus](#) Fijian Banded Pipefish, Brown-banded Pipefish [66199]		Species or species habitat may occur within area
[Corythoichthys ocellatus](#) Orange-spotted Pipefish, Ocellated Pipefish [66203]		Species or species habitat may occur within area
[Festucalex cinctus](#) Girdled Pipefish [66214]		Species or species habitat may occur within area
[Filicampus tigris](#) Tiger Pipefish [66217]		Species or species habitat may occur within area
[Halicampus grayi](#) Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
[Hippichthys cyanospilos](#) Blue-speckled Pipefish, Blue-spotted Pipefish [66228]		Species or species habitat may occur within area
[Hippichthys heptagonus](#) Madura Pipefish, Reticulated Freshwater Pipefish [66229]		Species or species habitat may occur within area
[Hippichthys penicillus](#) Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hippocampus kelloggi Kellogg's Seahorse, Great Seahorse [66723]		Species or species habitat may occur within area
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area
Hippocampus trimaculatus Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may occur within area
Hippocampus whitei White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]	Endangered	Species or species habitat likely to occur within area
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area
Micrognathus andersonii Anderson's Pipefish, Shortnose Pipefish [66253]		Species or species habitat may occur within area
Micrognathus brevirostris thorntail Pipefish, Thorn-tailed Pipefish [66254]		Species or species habitat may occur within area
Microphis manadensis Manado Pipefish, Manado River Pipefish [66258]		Species or species habitat may occur within area
Solegnathus dunckeri Duncker's Pipehorse [66271]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
Solegnathus spinosissimus Spiny Pipehorse, Australian Spiny Pipehorse [66275]		Species or species habitat may occur within area
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
Solenostomus paradoxus Ornate Ghostpipefish, Harlequin Ghost Pipefish, Ornate Ghost Pipefish [66184]		Species or species habitat may occur within area
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area
Mammal		
Dugong dugon Dugong [28]		Species or species habitat known to occur within area
Reptile		
Acalyptophis peronii Horned Seasnake [1114]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Aipysurus laevis Olive Seasnake [1120]		Species or species habitat may occur within area
Astrotia stokesii Stokes' Seasnake [1122]		Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Disteira kingii Spectacled Seasnake [1123]		Species or species habitat may occur within area
Disteira major Olive-headed Seasnake [1124]		Species or species habitat may occur within area
Emydocephalus annulatus Turtle-headed Seasnake [1125]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Hydrophis elegans Elegant Seasnake [1104]		Species or species habitat may occur within area
Laticauda laticaudata a sea krait [1093]		Species or species habitat may occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Pelamis platurus Yellow-bellied Seasnake [1091]		Species or species habitat may occur within area

Whales and Other Cetaceans		[Resource Information]
Current Scientific Name	Status	Type of Presence
Mammal		
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat known to occur within area
Orcaella heinsohni as Orcaella brevirostris Australian Snubfin Dolphin [81322]		Species or species habitat may occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Sousa sahulensis as Sousa chinensis Australian Humpback Dolphin [87942]		Breeding known to occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Habitat Critical to the Survival of Marine Turtles		
Scientific Name	Behaviour	Presence
Nov-Feb		
Caretta caretta Loggerhead Turtle [1763]	Nesting	Known to occur

Extra Information

EPBC Act Referrals			[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed
Japan-Guam-Australia Sunshine Coast Branch Marine Cable Route Survey (JGA) QLD	2018/8373	Not Controlled Action	Completed
MMTC between Caloundra Rd & Creekside Blvd	2004/1918	Not Controlled Action	Completed
Not controlled action (particular manner)			
Japan-Guam-Australia (JGA) Fibre Optic Cable project	2016/7795	Not Controlled Action (Particular Manner)	Post-Approval

Biologically Important Areas

Scientific Name	Behaviour	Presence
Dolphins		
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Breeding	Known to occur
Tursiops aduncus Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Breeding	Known to occur
Marine Turtles		
Caretta caretta Loggerhead Turtle [1763]	Nesting	Known to occur
Sharks		
Carcharias taurus Grey Nurse Shark [64469]	Foraging	Known to occur
Whales		
Megaptera novaeangliae Humpback Whale [38]	Migration (north and south)	Known to occur

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

Department of Climate Change, Energy, the Environment and Water
GPO Box 3090
Canberra ACT 2601 Australia
+61 2 6274 1111

WildNet Records
Conservation Significant Species List

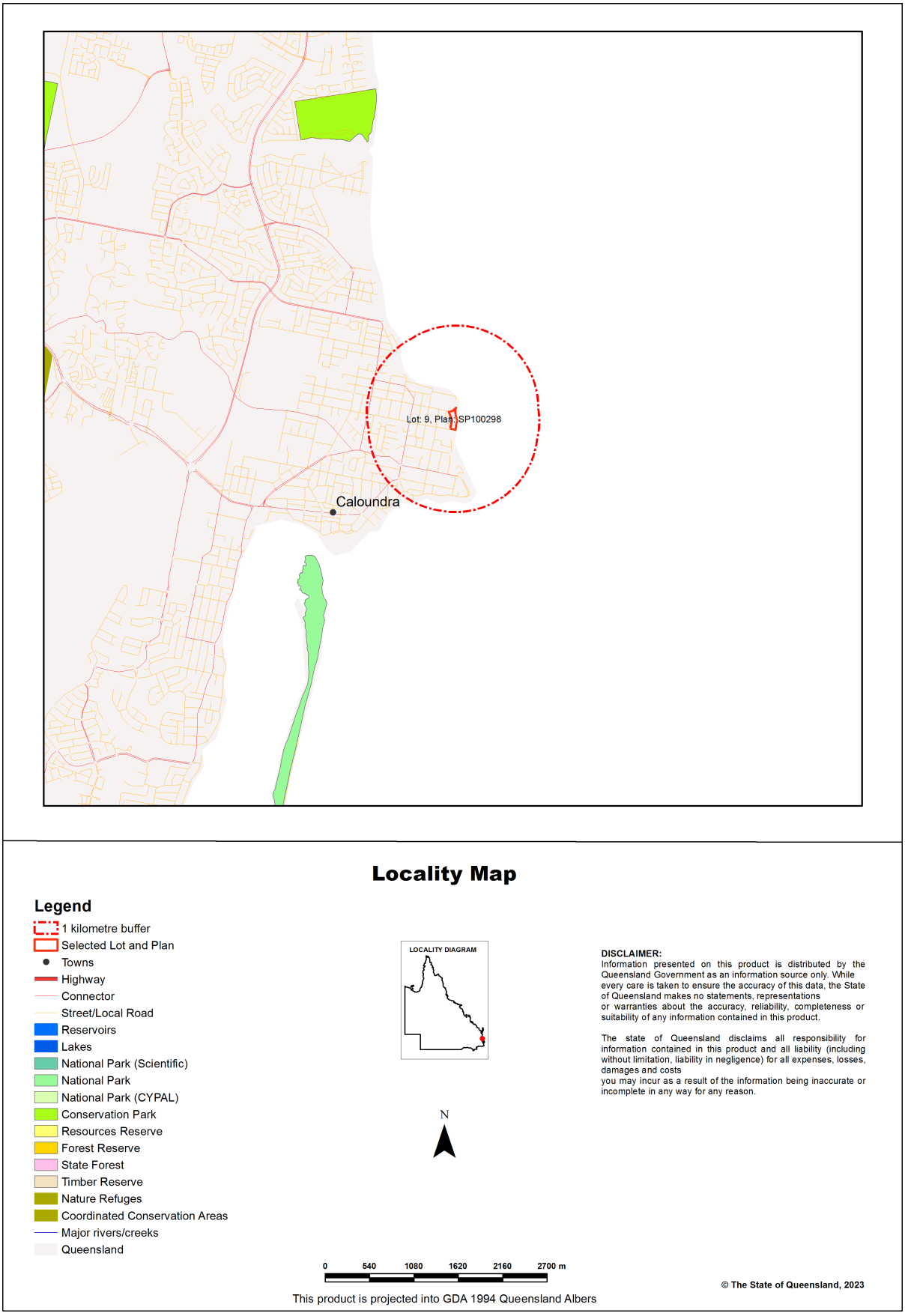
For the selected area of interest 1.54ha Lot: 9 Plan: SP100298

Current as at 04/05/2023

WildNetCSSpeciesList

Queensland Government

Map 1. Locality Map



Summary Information

The following table provides an overview of the area of interest Lot: 9 Plan: SP100298.

Table 1. Area of interest details

Size (ha)	1.54
Local Government(s)	Sunshine Coast Regional
Bioregion(s)	Southeast Queensland
Subregion(s)	Sunshine Coast - Gold Coast Lowlands
Catchment(s)	Maroochy

Protected Area(s)
No estates or reserves are located within the area of interest.

World Heritage Area(s)
No World Heritage Areas are located within the area of interest.

Ramsar Area(s)
No Ramsar Areas are located within the area of interest.

Conservation Significant Species List

Introduction

This report is derived from a spatial layer generated from the WildNet database managed by the Department of Environment and Science. The layer which is generated weekly contains the WildNet wildlife records that are not classed as erroneous or duplicate, that have a location precision equal to or less than 10000 metres and do not have a count of zero.

Conservation significant species are species listed:

- as threatened or near threatened under the Nature Conservation Act 1992;
- as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* or
- migratory species protected under the following international agreements:
  - Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)
  - China-Australia Migratory Bird Agreement
  - Japan-Australia Migratory Bird Agreement
  - Republic of Korea-Australia Migratory Bird Agreement

The WildNet dataset is constantly being enhanced and the taxonomic and status information revised. If a species is not listed in this report, it does not mean it doesn't occur there and listed species may also no longer inhabit the area. It is recommended that you also access other internal and external data sources for species information in your area of interest (Refer Links and Support).

Table 2 lists the species recorded within the area of interest and its one kilometre buffer.

Table 2. Conservation significant species recorded within the area of interest and its one kilometre buffer

Taxon Id	Kingdom	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1965	Animalia	Aves	Apodidae	*Apus pacificus*	fork-tailed swift	SL	None	0	1	31/03/1966
1971	Animalia	Aves	Apodidae	*Hirundapus caudacutus*	white-throated needletail	V	V	0	10	31/03/2006
1946	Animalia	Aves	Charadriidae	*Charadrius bicinctus*	double-banded plover	SL	None	0	1	31/05/1976
1948	Animalia	Aves	Charadriidae	*Charadrius leschenaultii*	greater sand plover	V	V	0	1	31/07/1965

Taxon Id	Kingdom	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1936	Animalia	Aves	Charadriidae	*Charadrius mongolus*	lesser sand plover	E	E	0	1	29/02/1984
1944	Animalia	Aves	Charadriidae	*Pluvialis fulva*	Pacific golden plover	SL	None	0	2	18/11/2001
1282	Animalia	Aves	Fregatidae	*Fregata minor*	great frigatebird	SL	None	0	1	05/04/1989
1886	Animalia	Aves	Laridae	*Gelochelidon nilotica*	gull-billed tern	SL	None	0	18	12/08/2018
1896	Animalia	Aves	Laridae	*Hydroprogne caspia*	Caspian tern	SL	None	0	10	18/11/2021
1899	Animalia	Aves	Laridae	*Sterna hirundo*	common tern	SL	None	0	21	05/12/2020
1905	Animalia	Aves	Laridae	*Sternula albifrons*	little tern	SL	None	0	3	01/01/2017
1895	Animalia	Aves	Laridae	*Thalasseus bergii*	crested tern	SL	None	1	171	09/01/2022
1595	Animalia	Aves	Monarchidae	*Monarcha melanopsis*	black-faced monarch	SL	None	0	2	27/11/2003
1597	Animalia	Aves	Monarchidae	*Symposiachrus trivirgatus*	spectacled monarch	SL	None	0	3	03/05/2003
1702	Animalia	Aves	Pandionidae	*Pandion haliaetus cristatus*	eastern osprey	SL	None	0	238	03/12/2021
1273	Animalia	Aves	Phaethontidae	*Phaethon rubricauda*	red-tailed tropicbird	V	None	0	1	27/07/1984
1188	Animalia	Aves	Procellariidae	*Ardenna pacifica*	wedge-tailed shearwater	V	None	0	1	18/12/1992
1190	Animalia	Aves	Procellariidae	*Ardenna tenuirostris*	short-tailed shearwater	SL	None	0	1	16/10/1991
1242	Animalia	Aves	Procellariidae	*Calonectris leucomelas*	streaked shearwater	SL	None	0	1	25/03/1984
1223	Animalia	Aves	Procellariidae	*Macronectes halli*	northern giant-petrel	V	V	0	1	13/07/1997
1578	Animalia	Aves	Rhipiduridae	*Rhipidura rufifrons*	rufous fantail	SL	None	0	2	16/01/2002
1883	Animalia	Aves	Rostratulidae	*Rostratula australis*	Australian painted-snipe	E	E	0	1	23/06/2001
1872	Animalia	Aves	Scolopacidae	*Arenaria interpres*	ruddy turnstone	SL	None	0	6	12/01/2019
1867	Animalia	Aves	Scolopacidae	*Limosa lapponica baueri*	Western Alaskan bar-tailed godwit	V	V	0	2	25/02/2017
1843	Animalia	Aves	Scolopacidae	*Numenius madagascariensis*	eastern curlew	E	CE	0	2	04/09/1992
1845	Animalia	Aves	Scolopacidae	*Numenius phaeopus*	whimbrel	SL	None	0	3	16/01/1999
1860	Animalia	Aves	Scolopacidae	*Tringa brevipes*	grey-tailed tattler	SL	None	0	1	13/03/1966
1861	Animalia	Aves	Scolopacidae	*Tringa incana*	wandering tattler	SL	None	0	119	03/12/2021

Taxon Id	Kingdom	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1268	Animalia	Aves	Sulidae	*Sula leucogaster*	brown booby	SL	None	0	1	16/01/1999
1055	Animalia	Mammalia	Balaenopteridae	*Megaptera novaeangliae*	humpback whale	C	None	0	3	27/11/2003
17783	Plantae	Equisetopsida	Burmanniaceae	*Burmannia disticha*	None	SL	None	1	1	31/05/1977

Taxon Id: Unique identifier of the taxon from the WildNet database.

NCA: Queensland conservation status of the taxon under the *Nature Conservation Act 1992* (Least Concern (C), Critically Endangered (CR), Endangered (E), Extinct (EX), Near Threatened (NT), Extinct in the Wild (PE), Special Least Concern (SL), and Vulnerable (V)).

EPBC: Australian conservation status of the taxon under the *Environment Protection and Biodiversity Conservation Act 1999* (Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Vulnerable (V), and Extinct in the Wild (XW)).

Specimens: The number of specimen-backed records of the taxon.

Records: The total number of records of the taxon.

Last record: Date of latest record of the taxon.

Links and Support

Other sites that deliver species information from the WildNet database include:

- Species profile search - access species information approved for publication including species names, statuses, notes, images, distribution maps and records
- Species lists - generate species lists for Queensland protected areas, forestry areas, local governments and areas defined using coordinates
- Biomaps - view biodiversity information, including WildNet records approved for publication, and generate reports
- Queensland Globe - view spatial information, including WildNet records approved for publication
- Qld wildlife data API - access WildNet species information approved for publication such as notes, images and records etc.
- Wetland*Maps* - view species records, survey locations etc. approved for publication
- Wetland*Summary* - view wildlife statistics, species lists for a range of area types, and access WildNet species profiles
- WildNet wildlife records - published - Queensland - spatial layer of WildNet records approved for publication generated weekly
- Generalised distribution and densities of Queensland wildlife - Queensland species distributions and densities generalised to a 10 km grid resolution
- Conservation status of Queensland wildlife - access current lists of priority species for Queensland including nomenclature and status information
- Queensland Confidential Species - the list of species flagged as confidential in the WildNet database.

Please direct queries about this report to the WildNet Team.

Other useful sites for accessing Queensland biodiversity data include:

- Useful wildlife resources
- Queensland Government Data
- Atlas of Living Australia (ALA)
- Online Zoological Collections of Australian Museums (OZCAM)
- Australia's Virtual Herbarium (AVH)
- Protected Matters Search Tool

Disclaimer

Appendix B

Likelihood of Occurrence

Threatened Ecological Communities

Threatened Ecological Community	PMST Search	EPBC Act Status	Ecology	Likelihood of Occurrence
Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community	Community may occur within area	Endangered	This TEC occurs in sub-tropical, sub-humid and temperate climatic zones from Curtis Island (QLD) to Bermagui (NSW). It occurs in coastal catchments, mostly at elevations of less than 20 m above sea level, typically within 30 km of the coast. It is often found in association with other vegetation types such as coastal saltmarsh, mangroves, freshwater wetlands, littoral rainforests or swamp sclerophyll forests in a mosaic of coastal floodplain communities. A key diagnostic characteristic of this TEC is that it has a canopy dominated by *Casuarina glauca*. In Queensland it corresponds with RE 12.1.1 and areas within RE 12.3.20 (DEE 2018b).	**Unlikely** This community has not been observed on site during vegetation community surveys undertaken by the Queensland Herbarium, nor have either of the potentially corresponding REs.
Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions	Community may occur within area	Endangered	This TEC is found on alluvial landforms, including floodplains, the riparian zones of parent rivers and other order tributaries, alluvial flats, alluvial / floodplain terraces and periodically flooded depressions. It generally occurs on alluvial soils that show little	**Unlikely** This community has not been observed on site during vegetation community surveys undertaken by the Queensland Herbarium, nor have either of

Threatened Ecological Community	PMST Search	EPBC Act Status	Ecology	Likelihood of Occurrence
			influence of saline groundwater. It does not typically occur on soils that are primarily marine or aeolian sand(DCCEEW 2022). Components of this TEC correlate with REs 12.3.3, RE 12.3.3a, 12.3.3d, 12.3.10, 12.3.18, 12.3.19 and 12.3.20.	the potentially corresponding REs.

Listed Threatened Flora

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
Acacia attenuata	Species or species habitat likely to occur within area.	Vulnerable	Found in flat coastal plains, in high rainfall areas. The species is restricted to heath ecotones or layered eucalypt open-forest and woodland. The soils are coastal sands or sandy, peaty soils (DoE 2023ae).	**Unlikely** No records exist within the Project area, with the closest record being approximately 5 km away (ALA 2014c). In addition, suitable habitat is not present within the Project area.
Austral toadflax, *Thesium australe*	Species or species habitat may occur within area.	Vulnerable	Austral toadflax occurs in NSW, ACT, QLD and VIC. Its current distribution is sporadic but widespread, occurring between the Bunya Mountains in SE QLD to NE VIC, and as far inland as the southern, central and northern tablelands in NSW and the Toowoomba region. It is a semi-parasitic species found on roots of a range of grass species, notably kangaroo grass. It occurs in subtropical, temperate and subalpine climates over a wide range of altitudes. It occurs on soils derived from	**Unlikely** No records exist within the Project area (ALA 2023ae) and suitable habitat is not present.

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			sedimentary, igneous and metamorphic geology on a range of soils including black clay loams to yellow podzolics and peaty loams. It occurs in shrubland, grassland or woodland, often in damp sites (DoE 2023 af).	
Hairy-joint grass, *Arthraxon hispidus*	Species or species habitat likely to occur within area.	Vulnerable	In NSW and QLD, this species is found in or on the edges of rainforest and in wet eucalypt forest, often near creeks or swamps, as well as woodland. In the SE QLD Bioregion *A. hispidus* has also been recorded growing around freshwater springs on coastal foreshore dunes, in shaded small gullies, on creek banks, and on sandy alluvium in creek beds in open forests, and also with bog mosses in mound springs (Queensland Government Species Profile).	**Unlikely** No records exist within the Project area (ALA 2023af) and suitable habitat is not present.
Leafless tongue-orchid, *Cryptostylis hunteriana*	Species or species habitat may occur within area.	Vulnerable	The leafless tongue-orchid extends from Orbost in east Gippsland in VIC through coastal NSW and up to Tin Can Bay area of southern QLD. This species has been reported to occur in a wide variety of habitats including heathlands, healthy woodlands, sedgelands, dry sclerophyll forests, forested wetlands, freshwater wetlands, grasslands, grassy woodlands, rainforests and wet sclerophyll forests. (DoE 2023ag).	**Unlikely** No records exist within the Project area (ALA 2023ag), with the closest record being approximately 33 km away (ALA 2022d). In addition, suitable habitat is not present.
Lesser swamp-orchid, *Phaius australis*	Species or species habitat likely to occur within area.	Endangered	*Phaius australis* grows in areas where soils are almost always damp, but not flooded for lengthy periods. Sands are generally the underlying soil type and they are usually found in coastal habitats in between swamps and forests or in suitable areas further inland. This includes swampy sclerophyll forest dominated by melaleucas, swampy forest that often have	**Unlikely** No records exist within the Project area (ALA 2023ah), with the closest record being approximately 11.5 km away (ALA 2014d). In addition, suitable habitat is not present.

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			sclerophyll emergents, or fringing open forest and melaleuca swamp forest associated with rainforest species. This species has also been recorded in wallum sedgeland, rainforest and closed forest where they often grow in deep shade, but can also occur in full sun (www.des.qld.gov.au/species-search).	
Macadamia nut, *Macadamia integrifolia*	Species or species habitat may occur within area.	Vulnerable	The macadamia nut is found in remnant rainforest in northern NSW and SE QLD. The species is known from Mt Bauple (north of Gympie) to Currumbin Valley (Gold coast hinterland). Along with the rough-shelled bush nut (*Macadamia tetraphylla*) this species forms the basis of the commercial macadamia nut industry. This species prefers to grow in mild, frost-free areas with a reasonably high rainfall. Vegetation communities in which this species is found range from complex notophyll mixed forest, extremely tall closed forest, simple microphyll-notophyll mixed mid-high closed forest with Araucaria and Argyrodendron emergents (DoE 2023ah).	**Unlikely** The Project area is within the known species' range (IUCN 2019) however, no records exist within the Project area (ALA 2023ai). In addition, no suitable habitat is present.
Native guava, *Rhodomyrtus psidioides*	Species or species habitat likely to occur within the area.	Critically Endangered	In NSW *Rhodomyrtus psidioides* is currently known to occur from Broken Bay to the QLD border. Populations of this species extend north to Gympie QLD. Populations are typically restricted to coastal and sub-coastal areas of low elevation however the species does occur up to 120 km inland in the Hunter and Clarence River catchments. It grows in warmer rainforests and its margins with sclerophyll	**Potential** There is a specimen-backed record (2021) from foreshore vegetation to the north of the site, in the Wurtulla Foreshore Reserve (approximately 5km away).

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			vegetation, often near creeks and drainage lines. (NSW Scientific Committee 2019).	
Quassia, *Samadera bidwillii*	Species or species habitat likely to occur within area.	Vulnerable	Quassia is endemic to QLD and is currently known to occur in several localities including: Scawfell Island, Mackay, Goomboorian and north of Gympie. This species mainly occurs in lowland rainforest margins, but it can also be found in other forest types, such as open forest and woodland. Quassia is commonly found in areas adjacent to both temporary and permanent watercourses (DoE 2023ai).	**Unlikely** No records exist within the Project area (ALA 2023ak) and suitable habitat is not present.
Scented Acronychia, *Acronychia littoralis*	Species or species habitat may occur within area.	Endangered	Narrow coastal distribution in eastern Australia between Fraser Island in Queensland and Port Macquarie. In Queensland there are two populations, a single site on the Gold Coast and near the Cooloola Section of Great Sandy National Park. The species occurs in coastal areas (<2 km from the sea) in sub-littoral rainforest, littoral and coastal cypress pine communities or on the margin of littoral forest and cleared land. Common associated tree species include brush box (*Lophostemon confertus*), coast banksia (*Banksia integrifolia*), coast cypress pine (*Callitris columellaris*), hoop pine (*Araucaria cunninghamii*), pink bloodwood (*Eucalyptus intermedia*) and broad-leaved paperbark (*Melaleuca quinquenervia*) (DoE 2023aj)	**Unlikely** Associated tree species *Banksia integrifolia* is present and may provide marginally suitable habitat however no records exist within the Project area (ALA 2023al) and the species has not been confirmed present during field surveys.
Scrub turpentine, *Rhodamnia rubescens*	Species or species habitat likely to occur within area.	Critically Endangered	Scrub turpentine occurs in coastal districts north from Batemans Bay in NSW to areas inland from Bundaberg in QLD. This species is found in littoral, warm temperate and	**Unlikely** No records exist within the Project area (ALA 2023am), with the closest record being

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			subtropical rainforest and wet sclerophyll forest usually on volcanic and sedimentary soils (NSW OEH 2019).	approximately 11 km away (ALA 2020f). In addition, suitable habitat is not present.
Shiny-leaved condoo, *Planchonella eerwah*	Species or species habitat may occur within area.	Endangered	Endemic to QLD the shiny leaved condoo was discovered at Ivory's Knob southwest of Ipswich. It is restricted to 3 locations within SE QLD: Nambour-Maleny district, Beenleigh-Ormeau-Pimpama district and Ipswich-Beaudesert district. This species grows in subtropical rainforest, dry rainforest and hoop pine vine scrub. All known areas in which this species is found are warm and subtropical with an annual rainfall of between 650-1000 mm (DoE 2023ak).	**Unlikely** No records exist within the Project area (ALA 2023an) and suitable habitat is not present.
Small-fruited Queensland nut, *Macadamia ternifolia*	Species of species habitat may occur within area.	Vulnerable	The small-fruited Queensland nut is endemic to QLD. Following extensive habitat clearing, the species it now considered extremely rare in the wild and is restricted to an area between Mt Pinbarren and Mary Cairncross Park near Maleny (distance of about 50km). The extent of occurrence of the small-fruited Queensland nut is estimated to be approximately 8000 km^2 and the area of occupancy of the species is approximately 5 km^2. Its remaining habitat is fragmented and found within lowland warm complete notophyll vine forest and Araucarian notophyll vine forest on basic and intermediate volcanic soils and alluvia in higher rainfall areas of south-east QLD. Mainly occurs in south-facing gullies (DoE 2023al).	**Unlikely** No records exist within the Project area (ALA 2023ao) and suitable habitat is not present.
Stinking cryptocarya, *Cryptocarya foetida*	Species or species habitat may occur within area.	Vulnerable	The stinking cryptocarya has been recorded from near Iluka, on the north coast of NSW, to	**Unlikely**

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			Fraser Island in QLD. Young plants are relatively common in littoral rainforest and sub-littoral open forest North from Richmond River, but mature specimens are fairly rare, mostly occurring at Brunswick Heads, Fingal and North of Terranora Broadwater. This species is restricted to coastal sands, or if not, then close to the coast, occurring in littoral rainforest on old sand dunes and subtropical rainforests over slate and occasionally on basalt to an altitude of 150 m (DoE 2023am).	No records exist within the Project area (ALA 2023ap), with the closest record being approximately 23 km away (ALA 2013a). In addition, suitable habitat is not present.
Swamp stringybark, *Eucalyptus conglomerata*	Species or species habitat may occur within area.	Endangered	The Swamp Stringybark is a mallee or small tree that grows to 12 m tall. This species is confined to southern coastal QLD between Kin Kin and Beerwah. It occurs on coastal flats up to 30m above sea level and mostly within the ecotone between wet heath (wallum) and tall open forest communities. (DoE 2023an).	**Unlikely** No records exist within the Project area (ALA 2023aq), with the closest record being approximately 10 km away (ALA 2017a). In addition, suitable habitat is not present.
Three-leaved bosistoa, *Bosistoa transversa*	Species or species habitat likely to occur within area.	Vulnerable	Three-leaved bosistoa is found from the Nightcap Range north of Lismore in north-east NSW to Mount Larcom (near Gladstone) in south-east QLD. The species is described in herbarium collection records as locally abundant at Natural Bridge-Springbrook NP and Coalstoun Lakes NP in QLD. This species typically grows in lowland subtropical rainforest. Has been found in closed forests on steep slopes, rainforests along creek lines, on reddish loam over basalt rock on very steep slopes and in notophyll vine forests (DoE 2023ao).	**Unlikely** No records exist within the Project area (ALA 2023), with the closest record being approximately 14 km away (ALA 2017). In addition, suitable habitat is not present.

Listed Threatened Fauna

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
Amphibians				
Fleay's barred frog, *Mixophyes fleayi*	Species or species habitat may occur within area	Endangered	Associated with montane rainforest and open forest communities adjoining rainforest, with the majority of records from altitudes above 400 m. Occurs along stream habitat and is not found in ponds or ephemeral ponds. Adults may be found in leaf litter and along watercourses in rainforest and adjoining wet sclerophyll forests (DoE 2023e).	**Unlikely** The Project is outside of the known species' range (Hines et al 2004) and no records exist within the Project area (ALA 2023a). In addition, suitable habitat is not present within the Project area.
Wallum sedge frog, *Litoria olongburensis*	Species or species habitat may occur within area	Vulnerable	Restricted to densely vegetated areas in the coastal lowlands of south-east Queensland, the wallum sedge frog prefers acidic freshwater swamps (pH <5.5) with emergent reeds, ferns and sedges. It is less commonly found around creeks and reed beds around freshwater lakes (DEHP 2017, DoE 2023f).	**Unlikely** The Project is within the known species' range however no records exist within the Project area, with the closest record being approximately 4.8 km from the Project area (ALA 2020a). Suitable habitat is not present within the Project area.
Insects				
Australian fritillary butterfly, *Argynnis hyperbius inconstans*	Species or species habitat may occur within area	Critically Endangered	The Australian fritillary usually occurs around river estuaries or open, swampy coastal areas. The species is restricted to areas where the larval food plant, *Viola betonicifolia* (the arrowhead violet), occurs. The arrowhead violet is a small perennial herb which usually grows in damp, shaded forest habitats and often grows in association with *Lomandra longifolia* and *Imperata cylindrica*. The Australian fritillary butterfly has been recorded in south-eastern QLD and north-eastern NSW between Gympie and Port Macquarie. There are only four	**Unlikely** Associated habitat including *Lomandra longifolia* and *Imperata cylindrica* exists within the Project area, however key larval food plant *Viola betonicifolia* was not confirmed present within the Project area. The species has not been previously recorded within the Project area.

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			extant populations left as their range has contracted by 80% (DEHP 2018).	
Birds				
Antipodean albatross, *Diomedea antipodensis*	Species or species habitat may occur within area.	Vulnerable, Migratory Marine	The Antipodean albatross is endemic to New Zealand. They breed on Antipodes Island, with a small population also breeding on the islands of Pitt and Campbell. They are a pelagic species, spending much of their life at sea. They return to land during the breeding season, where they nest on the windswept islands of the subantarctic region (www.arkive.org).	**Unlikely** The Project is within the known species' range (BirdLife 2013a, DoE 2023g) however, no records exist within the Project area (ALA 2023b) and suitable habitat is not present within the Project area.
Australasian bittern, *Botaurus poiciloptilus*	Species or species habitat likely to occur within area.	Endangered	Occurs from southern Queensland to Tasmania and south-eastern South Australia. In NSW this species has been recorded along the coast as well as inland wetlands and rivers (NPWS, 1999). The Australasian bittern occurs in estuarine and freshwater wetlands with tall dense vegetation, including sedges, spike rushes, reeds and bulrush (NPWS 2000; NPWS 1999). It favours wetlands with tall dense vegetation, where it forages in still, shallow water up to 0.3 m deep, often at the edges of pools or waterways, or from platforms or mats of vegetation over deep water. Feeds mostly at night upon frogs, yabbies, spiders, insects, snails, small fish and mice (Schodde and Tidemann 1993; NPWS 2000).	**Unlikely** The Project area is within the species' known range (ALA 2023c) however, no records exist within the Project area, with the closest record being approximately 20 km from the Project area (ALA 2014a). Suitable habitat is not present within the Project area.
Australian fairy tern, *Sternula nereis nereis*	Species or species habitat may occur within area.	Vulnerable	Inhabits coastal waters, bays, inlets, saline or brackish lakes, saltfields and sewage ponds near the coast throughout northwest, west and south Australia (Pizzey and Knight 1999).	**Unlikely** Although the Project area is adjacent to coastal waters and may provide marginally suitable habitat for the species, it is outside of the known species' range (ALA 2023d; BirdLife 2013b).

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
Australian painted snipe, *Rostratula australis*	Species or species habitat known to occur within area.	Endangered, Marine	Inhabits well-vegetated shallows and margins of wetlands, dams, sewage ponds and other watercourses; wet pastures, marshy areas, irrigation systems, lignum, tea-tree scrub and open timber (Geering et al. 2007; Pizzey and Knight 1999). Occurs mostly in south-eastern Australia but dispersive in response to rainfall. The species has a broad range of distribution throughout Australia but has a close association with brackish or freshwater terrestrial wetlands, especially temporary ones which have muddy margins. (www.birdlife.org.au).	**Unlikely** The Project is within the species' known range however, no recent records exist within the Project area, with the closest record being approximately 20 km from the Project area (ALA 2020b). In addition, suitable habitat is not present within the Project area.
Black-breasted button-quail, *Turnix melanogaster*	Species or species habitat likely to occur within area.	Vulnerable	Inhabits leaf-litter in drier rainforests, vine thickets; scrubby woodlands of eucalypts, she-oaks, bottle-brushes, brush box, Brigalow and other Acacias; thickets of lantana on rainforest fringes, hoop pine plantations; grain stubbles (Pizzey and Knight 1999). Its distribution is patchy in southeast QLD to northern NSW (Pizzey and Knight 1999).	**Unlikely** The Project area is within the known species' range however, no records exist within the Project area (ALA 2023e). Suitable habitat is not present within the Project area.
Black-browed albstross, *Thalassarche melanophris*	Species or species habitat may occur within area.	Vulnerable, Migratory Marine	The black-browed albatross breeds within Australian jurisdiction on Herd Island and Macquarie Island. Individuals are mostly confined to the Antarctic waters surrounding these islands in the breeding season. They are a marine species that inhabits Antarctic, subantarctic and temperate waters and occasionally enters the tropics. They breed on subantarctic and peri-Antarctic islands in colonies located on terraces of coastal cliffs, slopes of nearby hills, summits of rocky islets on flat or gently sloping ground (DoE 2023h).	**Unlikely** The Project area is within the known species' range (BirdLife 2016a) however, no records exist within the Project area, with the closest record being approximately 13 km from the Project area (ALA 2018). Suitable habitat is not present within the Project area.
Brown treecreeper (south-eastern), *Climacteris picumnus victoriae*	Species or species habitat may occur within area.	Vulnerable	Brown treecreepers (south-eastern) are endemic to south-eastern Australia from the Grampians in western Victoria, through central New South Wales to the Bunya Mountains in Queensland (Schodde & Mason 1999), and	**Unlikely** The Project is outside of the known species range (ALA 2023f) and suitable habitat is not present within the Project area.

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			from the coast to the inland slopes of Great Dividing Range (DCCEEW 2023). The subspecies occupies dry open eucalypt forests and woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species (Bounds 2019; Ford et al. 2021).They also occur in mallee, forests and woodlands subject to periodic inundation, e.g., river red gum (*Eucalyptus camaldulensis*) woodlands with an open understorey of acacias, saltbush, lignum, cumbungi and grasses in the upper Murray River (Loyn et al. 2002, 2019). Brown treecreepers are not usually found in woodlands with a dense shrub layer, and it is absent from heavily degraded woodlands and steep rocky hills (Noske 1982). The subspecies forages both on the ground and in mature live and dead trees feeding on a variety of invertebrate prey including ants, beetles, insect larvae, spiders, moths, flies, cockroaches, termites, and lacewings (Bounds 2019; Higgins & Peter 2002).	
Campbell albatross, *Thalassarche impavida*	Species of species habitat may occur within area.	Vulnerable, Migratory Marine	Breeds on Campbell Island (New Zealand) and breeding birds feed mainly over the Campbell Plateau and also visit Antarctic seas. Nonbreeding birds and immature birds visit Tasman Sea, south-west Pacific Ocean and south Australian waters, most commonly in winter (Pizzey and Knight 1999).	**Unlikely** The Project area is within the known species' range (DoE 2023i, BirdLife 2016b) however, no record exists within the Project area (ALA 2023g). In addition, suitable habitat is not present within the Project area.
Coxen's fig parrot, *Cyclopsitta diophthalma coxeni*	Species or species habitat may occur within area.	Critically Endangered	The distribution of the Coxen's fig-parrot is poorly known. Based on accepted records, the core distribution extends from Gympie in south-eastern QLD to Richmond River in north-eastern NSW. They occupy habitats that occur from sea level to approximately 900m above sea level. They	**Unlikely** The Project area is within the known species' range (BirdLife 2022a) however, no records exist within the Project area

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			occur in rainforest habitats including subtropical rainforest, dry rainforest, littoral and developing littoral rainforests and vine forests (DoE 2023j).	(ALA 2023h). In addition, suitable habitat is not present within the Project area.
Curlew sandpiper, *Calidris ferruginea*	Species or species habitat known to occur within area.	Critically Endangered, Migratory, Marine	Curlew sandpipers mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms (Pizzey and Knight 1999). They are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They generally roost on bare dry shingle, shell or sand beaches, sandpits and islets in or around coastal or near-coastal lagoons and other wetlands (DoE 2023k).	**Potential** The area is within the known species' range (BirdLife 2016c) however, no records exist within the Project area (ALA 2023i). Suitable habitat is present within the broader region with marginal roosting habitat (exposed sand beaches) present in the Project area. The closest record is approximately 3 km from the Project area (ALA 2019a).
Diamond firetail, *Stagonopleura guttata*	Species or species habitat may occur within area.	Vulnerable	Diamond firetails are distributed across the south-east mainland of Australia from south-east Queensland to Eyre Peninsula, South Australia, and about 300 km inland from the sea (Higgins et al. 2007). The species occurs in eucalypt, acacia or casuarina woodlands, open forests and other lightly timbered habitats, including farmland and grassland with scattered trees (Higgins et al. 2007). They have a preference for areas with relatively low tree density, few large logs, and little litter cover but high grass cover (Antos et al. 2008; DCCEEW 2023).	**Unlikely** The Project is within the known species' range where it is considered possibly extinct (BirdLife 2022b) and no records exist within the area (ALA 2023j). In addition, suitable habitat is not present within the Project area.
Eastern curlew, *Numenius madagascariensis*	Species or species habitat known to occur within area.	Critically Endangered, Migratory, Marine	Inhabits estuaries, tidal mudflats, sandspits, saltmarshes, mangroves; occasionally fresh or brackish lakes; bare grasslands near water (Pizzey and Knight 1999). The eastern curlew breeds in northeast Asia and is a common summer migrant to Australian coastlines, although about 25% of the population remains all year round (Finn et al. 2001 and 2007; Geering et al. 2007).	**Unlikely** The Project is within the known species' range (BirdLife 2017) however, no recent records exist within the Project area (ALA 2023k), with the closest record being approximately 2 km from the Project area

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
				(ALA 2021). In addition, suitable habitat is not present.
Fairy prion, *Pachyptla turtur subantarctica*	Species or species habitat known to occur within area.	Vulnerable, Marine	Subantarctic and cool temperate islands, such as Bass Strait islands, Tasmania and Macquarie Island. Also beachcast on the south-eastern coast of Australia. Breeds on islands and rock stacks. Burrows in soil or uses crevices and caves in cliffs or rock falls. Also nests in scrub, herbland, tussock or pasture (SPRAT 2010).	**Unlikely** The Project is within the known species' range (BirdLife 2014a) however, no records exist within the Project area (ALA 2023l). In addition, suitable habitat is not present within the Project area.
Gibson's albatross, *Diomedea antipodensis gibsoni*	Species or species habitat may occur within area.	Vulnerable, Marine	In Australian territory, the Gibson's albatross has been recorded foraging between Coffs Harbour, NSW and Wilson's Promontory VIC. This species is marine, pelagic and aerial. In the Antarctic, it occurs in open water and rarely enters the belt of icebergs region. On breeding islands they nest on coastal or inland ridges, slopes, plateaux and plains (DoE 2023l).	**Unlikely** No records exist within the Project area (ALA 2023m) and suitable habitat is not present within the Project area.
Greater sand plover, *Charadrius lechenaultii*	Species or species habitat likely to occur within area.	Vulnerable, Migratory, Marine	In Australia, the greater sand plover occurs in coastal areas in all states, though the greatest numbers occur in northern Australia, especially the northwest. This species breeds in central Asia. In the nonbreeding ground in Australasia, the species is almost entirely coastal, inhabiting littoral and estuarine habitats. They mainly occur on sheltered sandy, shelly or muddy beaches with large intertidal mudflats or sandbanks, as well as sandy estuarine lagoons, inshore reefs, rock platforms, small rocky islands or sandy cays on coral reefs. They are also occasionally recorded on near-coastal saltworks and salt lakes, including marginal saltmarsh, and on brackish swamps. They seldom occur at shallow freshwater wetlands (DoE 2023m).	**Potential** The Project area is within the known species' range (BirdLife 2019a) however, no recent records exist within the Project area (ALA 2023n), with the closest record being approximately 3.5 km (ALA 2020c). Suitable habitat (estuarine wetland) is present within the broader region but habitat within the Project area (exposed sandy beach) is marginal at best.

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
Grey falcon, *Falco hypoleucos*	Species or species habitat may occur within area.	Vulnerable	The grey falcon's habitat includes lightly treed inland plains; gibber deserts, sandridges, pastoral lands, timbered watercourses; seldom in driest deserts. Resident or nomadic visitor to inland parts of all mainland states (Pizzey and Knight 1999).	**Unlikely** The Project area is outside of the known species' range (BirdLife 2022c) and no records exist within the Project area (ALA 2023o). In addition, suitable habitat is not present within the Project area.
Indian yellow-nosed albatross, *Thalassarche carteri*	Species of species habitat may occur within area.	Vulnerable, Migratory Marine	The Indian yellow-nosed albatross forages mostly in the southern Indian Ocean where it is particularly abundant off Western Australia. In the Australasian region, the species occupies inshore and offshore waters, particularly where there are calm seas and light winds. The birds fly low or at medium heights over the sea, using air currents rising off swells for lift (DoE 2023n).	**Unlikely** The Project area is outside of the known species' range (BirdLife 2016d) and no records exist within the Project area (ALA 2023p). In addition, suitable habitat is not present.
Kermadec petrel (western), *Pterodroma neglecta neglecta*	Foraging, feeding or related behaviour may occur within area.	Vulnerable	Breeding occurs on atolls and rocky islets across subtropical South Pacific Ocean on vegetated coastal slopes, cliffs or mountainous terrain inland. Nests are located on the ground or in rock crevices under ferns, shrubs or trees (NPWS 1999).	**Unlikely** The Project area is within the known species' range (BirdLife 2013c) however, no records exist within the Project area (ALA 2023q). In addition, suitable habitat is not present.
Northern giant petrel, *Macronectes halli*	Species or species habitat may occur within area.	Vulnerable, Migratory Marine	During its first year, it probably occurs mainly on continental shelves, slopes and cold eastern boundary currents off South America, South Africa, Australia and New Zealand. It may be more oceanic from its second year. It is attracted to land at sewage outfalls, and scavenges at colonies of penguins and seals. Breeds on sub-Antarctic islands (DoE 2023o).	**Unlikely** The Project area is within the known species' range (BirdLife 2010a) however, no records exist within the Project area (ALA 2023r). In addition, suitable habitat is not present.
Nunivak bar-tailed godwit, *Limosa lapponica baueri*	Species of species habitat known to occur within area.	Vulnerable	The bar-tailed godwit (both subspecies combined) has been recorded in the coastal areas of all Australian states. It is widespread in the Torres Strait and along the eastern and south-east coasts of QLD, NSW and VIC. These	**Unlikely** No records exist within the Project area, with the closest being approximately 2.6 km (ALA 2019b). Suitable habitat is

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			species migrate southwards for the boreal winter. *L. l. menzbieri* has a more westerly migration than *L. l. baueri*. They are usually located around intertidal areas along muddy coastlines, estuaries, lagoons, sewage ponds, brackish or saline inland lakes, flooded pastures and airfields (Pizzey and Knight 1999)	present within the broader region but not within the Project area.
Red goshawk, *Erythrotriorchis radiatus*	Species or species habitat likely to occur within area.	Endangered	The red goshawk is endemic to Australia where it is very sparsely dispersed across approximately 15% of coastal and sub-coastal Australia from western Kimberly to north-eastern NSW, and occasionally on continental islands. It has probably always occurred in central Australia, where three widely-spaced, recent confirmed sightings corroborate earlier, previously doubted records, however no breeding has been recorded in central Australia. This species occurs in coastal and sub-coastal areas in wooded and forested lands of tropical and warm-temperate Australia. Riverine forests are also used frequently. Such habitats typically support high bird numbers and biodiversity, especially medium to large species which the red goshawk requires for prey (DoE 2023p).	**Unlikely** The Project is within the known species' range where it is considered possibly extinct (BirdLife 2022d) and no records exist within the area (ALA 2023s). In addition, suitable habitat is not present within the Project area.
Red knot, *Calidris canutus*	Species or species habitat known to occur within area.	Endangered, Migratory, Marine	Marine species. During the non-breeding season in Australasia, the red knot mainly inhabits intertidal mudflats, sandflats and sandy beaches of sheltered coasts and sometimes on sandy beaches or shallow pools on exposed rock platforms. They are occasionally seen on terrestrial saline wetlands near the coast and on sewage ponds and salt works (Higgins & Davies 1996).	**Potential** The Project area is within the known species' range (BirdLife 2006a) however, no record exists within the Project area (ALA 2023t), with the closest record being approximately 3.5 km (ALA 2020d). Suitable habitat (estuarine wetland) is present within the broader region with marginal habitat (exposed beach) within the Project area.

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
Regent honeyeater, *Anthochaera phrygia*	Species or species habitat likely to occur within area.	Critically Endangered	Inhabits dry open forest, woodlands, especially red ironbark, yellow box, yellow gum, particularly along creek flats; mistletoe on river oak; trees in farmland, streets, gardens (Pizzey and Knight 1999). This species is a patchy, irregular spring-summer breeding migrant to Dubbo-Warrumbungle NP, Munghorn Gap NR-Hunter R. and Windsor regions (NSW) (Pizzey and Knight 1999).	**Unlikely** The Project area is outside of the known species' range (BirdLife 2000) and no records exist within the Project area (ALA 2023u). In addition, no suitable habitat is present.
Salvin's albatross, *Thalassarche salvini*	Species or species habitat may occur within area.	Vulnerable, Migratory, Marine	Salvins' albatross is a non-breeding visitor to Australian waters. They are a marine species occurring in subantarctic and subtropical waters, reaching the tropics in the cool Humboldt current. This species has been noted in shelf-waters around breeding islands and over adjacent rises. They nest on level or gently sloping ledges, summits, slopes and caves of rocky islets and stacks (DoE 2023q).	**Unlikely** The Project area is outside of the known species' range (BirdLife 2016e) and no records exist within the Project area (ALA 2023v). In addition, no suitable habitat is present.
Shy albatross, *Thalassarche cauta*	Species or species habitat may occur within area.	Endangered, Migratory, Marine	Shy albatrosses appear to occur over all Australian coastal waters below 25° S. It is most commonly observed over the shelf waters around Tasmania and south-eastern Australia. It appears to be less pelagic than many other albatrosses, ranging well inshore over the continental shelf, even entering bays and harbours (TSSC 2020).	**Unlikely** The Project area is within the known species' range (BirdLife 2022e) however, no records exist within the Project area (ALA 2023w). In addition, no suitable habitat is present.
Sooty albatross, *Phoebetria fusca*	Species or species habitat may occur within area.	Vulnerable, Migratory, Marine	This species is marine and pelagic and has sometimes been observed foraging in inshore waters in southern Australia. The sooty albatross is a rare, but probably regular migrant to Australia, mostly in the autumn-winter months, occurring north to south-east Queensland, NSW, Victoria, Tasmania and South Australia (DoE 2023r).	**Unlikely** The Project area is outside of the known species' range (BirdLife 2016f) and no records exist within the Project area (ALA 2023x). In addition, no suitable habitat is present.
South-eastern glossy black-cockatoo, *Calyptorhynchus lathami lathami*	Species or species habitat likely to occur within area.	Vulnerable	The southern glossy black cockatoo has a widespread distribution, ranging from Gympie to the south-east QLD border, inland to Augathella and Tambo. The distribution	**Unlikely** The Project area is within the known species' range (BirdLife 2022f) however, no

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			of this species continues south into NSW spreading inland to the central western plains and also occurs in the eastern coastal Gippsland region of VIC. This species prefers woodland areas dominated by she-oak (*Allocasuarina*) or open sclerophyll forests and woodland with a stratum of *Allocasuarina* beneath *Eucalyptus, Corymbia* or *Angophora*. Glossy black-cockatoos have also been observed in mixed *Allocasaurina, Casuarina*, cypress *Callitris* and brigalow (*Acacia harpophylla*) woodland assemblages (Hourigan 2012).	records exist within the Project area, with the closest record being approximately 14.5 km from the Project area (ALA 2022a). In addition, no suitable habitat is present.
Southern giant petrel, *Macronectes giganteus*	Species or species habitat may occur within area.	Endangered, Migratory Marine	Breeds on Macquarie Island, Heard Island, McDonald Island, Giganteus Island, Hawker Island and Frazier Island. Nests in open vegetation or in Antarctic colonies of no vegetation. In the southern Antarctic zone, it nests in exposed snow and ice-free coastal areas, open gravel areas rocky bluffs, outcrops, ridges, slopes, mounds, raised beaches, open flats, edges of plateaux or offshore rocks. Often nest near a steep drop or on slope (DoE 2023s).	**Unlikely** The Project area is within the known species' range (BirdLife 2010b) however, no records exist within the Project area (ALA 2023y). In addition, no suitable habitat is present.
Wandering albatross, *Diomedea exulans*	Species or species habitat may occur within area.	Vulnerable, Migratory, Marine	The wandering albatross spends the majority of its time in flight, soaring over the southern oceans. They breed on a number of islands just north of the Antarctic Circle. They breed on ridges and hillocks, amongst open and patchy vegetation (www.arkive.org, also DoE 2023t).	**Unlikely** The Project area is outside of the known species' range (BirdLife 2016g) and no records exist within the Project area (ALA 2023z). In addition, no suitable habitat is present.
White-bellied storm-petrel, *Fregetta grallaria grallaria*	Species or species habitat likely to occur within area.	Vulnerable	The white-bellied storm-petrel breeds on small offshore islets and rocks in the Lord Howe Island group, including Roach Island and Balls Pyramid. They occur across sub-tropical and tropical waters in the Tasman Sea, Coral Sea and possibly, the central Pacific Ocean. In the non-breeding season they reach the forages over near-shore	**Unlikely** The Project area is within the known species' range (BirdLife 2004) however, no records exist within the Project area (ALA 2023ab). In addition, no suitable habitat is present.

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			waters along the continental shelf of mainland Australia (DoE 2023u).	
White-capped albatross, *Thalassarche steadi*	Species or species habitat may occur within area.	Vulnerable, Migratory, Marine	Probably common off the coast of south-east Australia throughout the year. Found in shelf-waters around breeding islands and over adjacent rises. During the non-breeding season, birds have been observed over continental shelves around continents. The species occurs both inshore and offshore and enters harbours and bays. Scarce in pelagic waters (DoE 2023v).	**Unlikely** The Project area is within the known species' range (BirdLife 2016h) however, no records exist within the Project area (ALA 2023ac). In addition, no suitable habitat is present.
White-throated needletail, *Hirundapus caudacutus*	Species or species habitat known to occur within area.	Vulnerable, Migratory, Marine	Almost exclusively aerial from heights of less than 1m up to more than 1000m above the ground. Most often recorded above wooded areas, including open forest and rainforest and also are commonly recorded over heathland and coastal cliffs (DoE 2023w).	**Known** The Project area is within the known species' range (BirdLife 2018a) with a relatively recent record <1km from the Project area (ALA 2014b) as well as a record from within the project area from 2006 (WildNet). The vegetation within the Project area forms a coastal heathland community which the species may fly over.
Fish				
Black rockcod, *Epinephelus daemelii*	Species or species habitat may occur within area.	Vulnerable	The black rockcod occurs in Australia, New Zealand and the Kermadec Islands. In Australia it is known from coastal and offshore reefs and islands from southern Queensland to eastern Victoria. It is also known from Elizabeth Reef, Middelton Reef, Lord Howe Island and Norfolk Island (Queensland Museum).	**Unlikely** This species is entirely marine and would not be found within the Project area.
Great white shark, *Carcharodon carcharias*	Species or species habitat known to occur within area	Vulnerable, Migratory Marine	In Australia, great white sharks have been recorded from central Queensland around the south coast to northwest Western Australia, but may occur further north on both coasts. It has been sighted in all coastal areas except in	**Unlikely** This species is entirely marine and would not be found within the Project area.

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			the Northern Territory. The great white shark moves seasonally along the south and east Australian coasts, moving northerly along the coast during autumn and winter, and returning to southern Australian waters by early summer. Found from close inshore around rocky reefs, surf beaches and shallow coastal bays to outer continental shelf and slope areas. They also make open ocean excursions and can cross ocean basins (e.g. South Africa to Western Australia). Often found in regions with high prey density (SPRAT 2010).	
Green sawfish, *Pristis zijsron*	Breeding may occur within area	Vulnerable, Migratory Marine	The green sawfish was once widely distributed but it is now thought that northern Australia may be the last region where significant populations of green sawfish exist. They inhabit muddy bottom habitats and also enter estuaries where they can be found in shallow water. Its habitat is heavily fished and often subject to pollution, habitat loss and degradation (SPRAT 2010).	**Unlikely** This species is entirely marine and would not be found within the Project area.
Grey nurse shark, *Carcharius taurus*	Species or species habitat likely to occur within area	Critically Endangered	Grey nurse sharks are found primarily in warm temperate inshore waters around rocky reefs and island, in or near deep sandy-bottomed gutters or rocky caves, and occasionally in the surf zone and shallow bays. They are often observed hovering motionless just above the seabed (SPRAT 2002).	**Unlikely** This species is entirely marine and would not be found within the Project area.
Honey blue-eye, *Pseudomugil mellis*	Species or species habitat may occur within area.	Vulnerable	The Honey Blue-eye is only known to occur in Queensland, where it has a restricted range from the Brisbane area northwards to the Bundaberg area, including Fraser Island (Allen, 1989; EPA, 2005). Within its distribution it occurs in many lakes and creeks on Fraser Island and in a few creeks on the mainland, between Caboolture and Tin Can Bay (Allen, 1989; Wagner & Jackson, 1993; EPA, 2005). This species remains relatively	**Unlikely** This species is entirely marine and would not be found within the Project area.

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			abundant in the Noosa River and Fraser Island localities inhabiting clear, slightly acidic and tannin-stained lakes and streams with sandy or muddy bottoms in coastal heath (wallum) areas in south-east Queensland (Allen, 1989; Wagner & Jackson, 1993; EPA, 2005). It usually occurs where there is little or no flow and the fish can find shelter in dense, aquatic vegetation, such as emergent and submerged sedges, along the margins (Arthington & Marshall, 1993; EPA, 2005).	
Non-parasitic lamprey, *Mordacia praecox*	Species or species habitat may occur within area.	Endangered	The short-headed lamprey is distributed in coastal rivers from Adelaide to Sydney (including Tasmania) and overlaps the southern coastal NSW precocious lamprey distribution (Gilligan 2019). Unlike most parasitic lamprey species, the species is entirely a freshwater species restricted to individual river basins, completing its life cycle in rivers and never migrating to brackish or marine systems (TSSC 2023). The precocious lamprey is found exclusively in the freshwater lower reaches of a few coastal rivers having only ever been recorded relatively close to the coast (< 50 km) (Potter & Strahan 1968). During larval stage, the species is buried in soft sand, silt, and clay substrates with preference to coarser substrates as they grow with its distributional downstream limit likely determined by salinity (Potter 1970). Mature adults make short, nocturnal upstream migrations from larval to spawning areas in faster flowing, better oxygenated and gravel-bottomed headwaters (Allen et al. 2002; Warrington et al. 2017) In Queensland, precocious lamprey subpopulations exist only in streams featuring a high groundwater input and perennial flow (TSSC 2023).	**Unlikely** This species is entirely marine and would not be found within the Project area.

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
Oxleyan pygmy perch, *Nannoperca oxleyana*	Species or species habitat may occur within area.	Endangered	Patchy distribution throughout its range where it mostly occurs in swamps, creeks and lakes of coastal wallum habitats. Specifically requires fresh, acidic water with some form of shelter such as dense aquatic vegetation, tree roots and other snags. Also appears to prefer slow moving or still water (NSW DPI, 2005; SPRAT, 2010).	**Unlikely** This species is entirely marine and would not be found within the Project area.
Scalloped hammerhead shark, *Sphyrna lewini*	Species or species habitat likely to occur within area	Conservation Dependent	The scalloped hammerhead has a circum-global distribution in tropical and sub-tropical waters, and within Australia extends from New South Wales (approximately from Wollongong, where it is less abundant), around the north of the continent and then south into Western Australia to approximately Geographe Bay, though it is rarely recorded south of the Houtman Abrolhos Islands (TSSC 2017). The species rarely ventures into or across deep ocean waters, but ranges quite widely over shallow coastal shelf waters with very little structuring from the eastern to western extents within Australia and it is likely to be a shared stock with Indonesia (Chin et al. 2017). Along the east coast, scalloped hammerheads reproduces year-round with peak pupping season between October and January, preferencing shallow intertidal and inshore habitats for breeding (TSSC 2017).	**Unlikely** This species is entirely marine and would not be found within the Project area.
Southern bluefin tuna, *Thunnus maccoyii*	Species or species habitat likely to occur within area.	Conservation Dependent	The southern bluefin tuna is a highly migratory species that occurs globally in waters between 30°S and 50°S, though is mainly found in the eastern Indian Ocean and in the southwestern Pacific Ocean (CCSBT, 2009a). In Australian waters, the species is widely distributed and ranges from northern Western Australia, around the southern region of the continent, to northern New South Wales, with a single known spawning ground in the Indian Ocean, between Java and northern Western	**Unlikely** This species is entirely marine and would not be found within the Project area.

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			Australia within Australia's Exclusive Economic Zone (Phillips and Findlay, 2008).	
Whale shark, *Rhincodon typus*	Species or species habitat may occur within area	Vulnerable, Migratory Marine	In Australia, the Whale Shark is known from New South Wales, Queensland, Northern Territory, Western Australia and occasionally Victoria and Southern Australia, but is most commonly seen in waters off northern Western Australia, Northern Territory and Queensland. The Whale Shark seasonally aggregates in coastal waters off Ningaloo Reef between March and July each year, at Christmas Island between December and January, and in the Coral Sea between November and December. The Whale Shark is an oceanic and coastal, tropical to warm-temperate pelagic shark (SPRAT, 2010).	**Unlikely** This species is entirely marine and would not be found within the Project area.
White's seahorse, *Hippocampus whitei*	Species or species habitat likely to occur within area	Endangered, Marine	White's seahorse is known to occur in estuaries from St Georges Basin, NSW to Hervey Bay, QLD (Harasti et al., 2012). The species displays strong site fidelity occupying a wide range of habitat types (both natural and artificial) with preference for seagrass meadows, *Sargassum* sp. macroalgal, sponge gardens and soft corals (Harasti et al., 2014). They prefer more complex habitats, believed to provide better protection and more available food resources, however, their habitat selection can also be influenced by prey type and occurrence of predators (Manning et al., 2018).	**Unlikely** This species is entirely marine and would not be found within the Project area.
Mammals				
Blue whale, *Balaenoptera musculus*	Species or species habitat may occur within area	Endangered, Migratory Marine	The blue whale is found in every ocean except the arctic, with a range that extends from the periphery of drift-ice in polar seas to the tropics. It follows seasonal migration pattern between summering and wintering areas although some individuals may remain in certain areas	**Unlikely** This species is entirely marine and would not be found within the Project area.

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			year-round. They mate and calve in tropical-to-temperate waters during winter months and feed in polar waters during summer months (www.arkive.com).	
Greater glider (southern and central subspecies), *Petauroides volans*	Species or species habitat likely to occur within area	Endangered	The southern and central greater glider occurs in eastern Australia, where it has a broad distribution from around Proserpine in QLD, south through NSW and the ACT, to Wombat State Forest in central VIC. This species is largely restricted to eucalypt forests and woodlands of eastern Australia. It is typically found in highest abundance in taller, montane, moist eucalypt forests on fertile soils, with relatively old trees and abundance hollows. It is likely that only a proportion of forest in potential habitat areas is suitable for the species, as the structural attributes of the forest overstorey and forage quality it relies on vary considerably across the landscape (TSSC 2022).	**Unlikely** The Project is within the known species' range (IUCN 2016a) however, no records exist within the Project area, with the closest record being approximately 36 km (ALA 2022). In addition, the site does not provide suitable habitat.
Grey-headed flying-fox, *Pteropus poliocephalus*	Foraging, feeding or related behaviour likely to occur within area	Vulnerable	The grey-headed flying-fox occurs in a range of habitats including subtropical and temperate rainforests, dry and wet sclerophyll forests, Banksia woodland, heaths and Melaleuca swamps (Duncan et al. 1999; NPWS 2001).	**Unlikely** The Project is within the known species' range (IUCN 2021b) however, the site does not provide suitable habitat.
Koala, *Phascolarctos cinereus*	Species or species habitat likely to occur within area	Endangered	The koala is endemic to Australia. The biological species range extends from north-eastern QLD to the south-east corner of SA. Koalas naturally inhabit a range of temperate, subtropical and tropical forests, woodland and semi-arid communities dominated by Eucalyptus species. Their habitat can broadly be defined as any forest or woodland containing species that are a known koala food tree, or shrubland with emergent food trees (SPRAT 2017).	**Unlikely** The Project is within the known species' range (DoE 2023x) however, no records exist within the Project area, with the closest record being approximately 14 km (ALA 2022c). In addition, the site does not provide suitable habitat.

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
Large-eared pied bat, *Chalinolobus dwyeri*	Species or species habitat may occur within area	Vulnerable	It is found in a variety of drier habitats, including the dry sclerophyll forests and woodlands to the east and west of the Great Dividing Range. Daytime roosts include caves, mine tunnels and the abandoned, bottle-shaped mud nests of fairy martins. In caves it often selects positions close to the cave entrance where individuals huddle together. It is believed to forage for small flying insects below the forest canopy. Its distribution of mostly limited to NSW with a few records in SE Queensland (Strahan 2002).	**Unlikely** The Project is within the known species' range (IUCN 2008a) however, the site does not provide suitable habitat.
Long-nosed potoroo, *Potorous tridactylus tridactylus*	Species or species habitat likely to occur within area	Vulnerable	The long-nosed potoroo (northern) has scattered populations extending from south-eastern QLD through to NSW. This species has been recorded at Many Peaks range, south-west of Gladstone, Bellthorpe near Beerwah and in the Border Ranges. It has also been seen at Bulburin, south-west of Miriam Vale and in the Lamington National Park and surrounds. There is limited information about the species habitat in QLD and NSW. There appears to be no consistent pattern to the habitat that this species utilises as it has been found in wet eucalypt forests through to coastal heaths and scrubs. Key attributes appear to be access to some form of dense vegetation for shelter and the presence of an abundant supply of fungi for food (DoE 2023y).	**Unlikely** The Project is outside the known species' range (IUCN 2016b), there are no records nearby and suitable habitat is not present.
Northern quoll, *Dasyurus hallucatus*	Species or species habitat may occur within area	Endangered	The northern quoll occurs across much of northern Australia, from south-eastern Queensland to the south-west Kimberley, with a disjunct population in the Pilbara. In the Northern Territory it is restricted to the Top End. The species occupies a diversity of habitats across its range which includes rocky areas, eucalypt forest and woodlands, rainforest, sandy lowlands and beaches,	**Unlikely** The Project is outside the known species' range (Oakwood et al 2016), there are no records nearby and suitable habitat is not present.

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			shrubland, grasslands and desert. The habitat generally encompasses some form of rocky area for denning purposes with surrounding vegetated habitats used for foraging and dispersal (DoE 2023z).	
Southern Right Whale, *Eubalaena australis*	Species or species habitat likely to occur within area	Endangered, Migratory Marine	The southern right whale is distributed throughout the southern hemisphere. Coastal breeding areas are utilised during the austral winter and spring. The feeding habitat of the southern right whale is very poorly known, but based on sightings, most feeding areas are thought to be in deeper offshore waters (SPRAT 2016).	**Unlikely** This species is entirely marine and would not be found within the Project area.
Spotted-tailed quoll, *Dasyurus maculatus maculatus*	Species or species habitat likely to occur within area	Endangered	The spotted-tailed quoll occurs along the east coast of Australia from south east Queensland to South Australia and Tasmania. The spotted-tailed quoll has been recorded in a wide range of habitat types including dry and moist sclerophyll forests and woodlands, rainforest, coastal heathland, and riparian forest. This species been occasionally sighted in treeless areas, rocky outcrops and grazing lands (NPWS, 1999; NPWS, 2000; Strahan, 2008). The spotted-tailed quoll shelters and dens in small caves, fallen logs with large hollows and tree hollows and may utilise numerous dens within its home range which has been estimated to be between 800 ha to 20 km^2 (NPWS, 2000; NPWS in prep, 1999). It is partly arboreal and feeds upon a variety of prey species including birds, rodents, lizards, small wallabies, and even insects. It is also known to scavenge and feed upon carrion, road kills including wild dogs, and litter (Strahan 1998; NPWS 2000).	**Unlikely** The Project area is within the known species' range (Burnett & Dickman 2018) however, no records exist within the Project area, with the closest record being approximately 28 km from the Project area (ALA 2020e). In addition, suitable habitat is not present within the Project area.
Yellow-bellied glider, *Petaurus australis australis*	Species or species habitat may occur within area	Vulnerable	The yellow-bellied glider is found in tall mature Eucalypt forest, and they feed on a range of sources including winter-flowering Eucalypts which provide nectar and pollen. They also feed upon the sap of Eucalypts in which	**Unlikely** The Project area is within the known species' range (Woinarski et al 2016)

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			they chew V-shaped incisions to collect the sap. Yellow-bellied gliders den in large tree hollows (NPWS, 2000).	however, no records exist within the Project area, the closest record is >80 km from the Project area (ALA 2015). In addition, suitable habitat is not present.
Reptiles				
Three-toed snake-toothed skink, *Coeranoscincus reticulatos*	Species or habitat may occur within area	Vulnerable	The species has been found in loose, well-mulched friable soil, in and under rotting logs, in forest litter, under fallen hoop pine bark and under decomposing cane mulch. It has been found in forest that grows on silica sand. In Queensland the species has been recorded in rainforest, closed forest, wet sclerophyll forest, tall open Blackbutt forest, tall layered open eucalypt forest and closed Brush Box forest (DoE 2023aa)	**Unlikely** There are no prior records of the species within the Project area and no suitable habitat present.
Collared delma, *Delma torquata*	Species or habitat may occur within area	Vulnerable	The collared delma normally inhabits eucalypt-dominated woodlands and open forests in Queensland Land Zones 3 (Alluvium), 9 (undulating country on fine-grained sedimentary rocks) and 10 (sandstone ranges).	**Unlikely** There are no prior records of the species within the Project area and no suitable habitat present. The project area is in Land Zone 2 (DoE 2023ab).
Flatback turtle, *Natator depressus*	Breeding known to occur within area	Vulnerable, Migratory Marine	Adults inhabit soft bottom habitat over the continental shelf of northern Australia (DoE 2023d). There are four major nesting areas in Australia: East coast from Mon Repos in the south to Herald Island in the north, North-Eastern Gulf of Carpentaria and western Torres Strait (the largest), western Northern Territory, and in the Kimberly and Pilbara regions of Western Australia.	**Unlikely** The Project area is outside the known species' nesting sites (DoE 2023d).
Green turtle, *Chelonia mydas*	Breeding known to occur within area	Vulnerable, Migratory Marine	Found in tropical, and to a lesser extent subtropical, water, the green turtle ranges throughout the Pacific, Atlantic and Indian Oceans, as well as in smaller seas such as the Arabian Gulf and Mediterranean Sea. Unlike other	**Known** The green turtle has been recorded within the project area, including a confirmed

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			marine turtles, the adult green turtle is almost exclusively herbivorous, grazing on sea grasses and algae, whilst the young are typically omnivorous, commonly feeding on jellyfish, molluscs and sponges. They normally inhabit shallow developmental areas, rich in seagrass or marine algae. They migrate long distances every few years to nesting beaches. Juveniles are thought to undertake an oceanic phase, where they possibly float passively on major current systems in the open ocean (www.arkive.org, DoE 2023c).	record of nesting approximately 10 years ago.
Hawksbill turtle, *Eretmochelys imbricata*	Species or species habitat known to occur within area	Vulnerable, Migratory Marine	Post-hatchling turtles spend several years in the pelagic environment (Limpus et al. 1994e) often in association with rafts of Sargassum (Carr 1987b). Once hawksbill turtles reach 30-40 cm curved carapace length (Limpus 1992; Whiting 2000), they enter benthic foraging habitat on coral and rocky reefs habitat in tropical and subtropical waters (sometimes temperate waters) (Witzell 1983) where they will remain for decades (Limpus 1992). Nesting habitat is mostly on tropical beaches (Witzell 1983). (DEWHA, 2008a). Two major breeding areas occur in Australia: Northern Great Barrier Reef and on the North-West Shelf of Western Australia.	**Unlikely** The Project area is outside of known nesting sites (Ehmann et al. 1999, DoE 2023ac).
Leatherback turtle, *Dermochelys coriacea*	Species or species habitat known to occur within area	Endangered, Migratory Marine	Occurs in all coastal waters of Australia, with most sightings in temperate waters (Coggerbray 2000). Most of the nesting in Australia appears to be low density and there are no major nest sites recorded in Australia. There has been no nesting in QLD or NSW since 1996. (DoE 2023b).	**Unlikely** The Project area is within the known species' range (IUCN 2013a) with the species considered extant (resident) however, the Project area is outside of known nesting sites (DoE 2023b).
Loggerhead turtle, *Caretta caretta*	Breeding known to occur within area	Endangered, Migratory Marine	Occurs in tropical and warm temperate waters off the Australian coast. This species chooses a wide variety of tidal and sub-tidal habitat as feeding areas. The female	**Known**

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			comes ashore to lay her eggs in a hole dug on open, sandy beaches (DoE 2023a; DERM, 2010). In Australia there are two unique breeding populations: Eastern (Mon Repos, wreck Rock, Wreck Island) and Western (Muiron Islands, Ningaloo Coast south to about Carnarvon and islands near Shark Bay).	The Project area is known to provide nesting habitat for the loggerhead turtle.
Olive Ridley turtle, *Lepidochelys olivacea*	Species or species habitat known to occur within area	Endangered, Migratory Marine	Nests in sandy beaches and resides in coastal zones along the northern coast of Australia. Mostly forages in shallow benthic habitats and also in pelagic foraging habitats (DoE 2023ad). Rarely found in Great Barrier Reef waters (Cogger 2000).	**Unlikely** The Project area is outside of known nesting sites (Chatto and Baker 2008, DoE 2023ad).

Listed Migratory Species

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
Migratory Birds				
Asian dowitcher, *Limnodromus semipalmatus*	Species or species habitat may occur within area.	Migratory, Marine	The Asian dowitcher is found on tidal mudflats, beaches, commercial saltfields and sewage ponds (Pizzey and Knight 1999).	**Unlikely** The Project area is outside of the known species' range (BirdLife 2013e) and no records exist within the Project area, with the closest record being approximately 27 km from the Project area (ALA 2014e).
Bar-tailed godwit, *Limosa lapponica*	Species or species habitat known to occur within area.	Migratory, Marine	The temperate or tropical winter habitats are usually located around intertidal areas along muddy coastlines, estuaries, lagoons, sewage	**Unlikely** The Project area is within the known species' range (BirdLife 2006) however, no records exist within the Project area

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			ponds, brackish or saline inland lakes, flooded pastures and airfields (Pizzey and Knight 1999).	(ALA 2023ar), with the closest record being approximately 3 km away (ALA 2019c). In addition, suitable habitat is not present within the Project area.
Black-faced monarch, *Monarcha melanopsis*	Species or species habitat known to occur within area.	Migratory, Marine	The black-faced monarch is found in rainforests, eucalypt woodlands, coastal scrub and damp gullies. It may be found in more open woodland when migrating (www.birdsinbackyards.net).	**Known** The Project area is within the known species' range (BirdLife 2006b) and there are records from 2003 (WildNet) and 2021 within 2km (ALA 2021b). The site is predominantly coastal scrub which provides marginally suitable habitat for the species.
Common greenshank, *Tringa nebularia*	Species or species habitat likely to occur within area.	Migratory, Marine	In Queensland, the species is widespread in the Gulf country and eastern Gulf of Carpentaria (DoE 2023ap). Found in mudflats, estuaries, saltmarshes, margins of lakes, wetlands, claypans, fresh and salines, commercial saltfields, sewage ponds (Pizzey and Knight 1999).	**Unlikely** The Project area is within the known species' range (BirdLife 2007c) however, no records exist within the Project area, with the closest record being approximately 13 km from the Project area (ALA 2019d). In addition, suitable habitat is not present.
Common noddy, *Anous stolidus*	Species or species habitat likely to occur within area.	Migratory, Marine	In Australia, the common noddy mainly occurs in oceans off the QLD coast, but the species also occurs off the north-west and central WA coast. During the breeding season the common noddy usually occurs on or near islands, on rocky islets and stacks with precipitous cliffs, or on shoals of cays of coral or sand. They will forage in surrounding waters (DoE 2023aq).	**Unlikely** The Project area is within the known species' range (BirdLife 2014b) however, no records exist within the Project area, with the closest record being approximately 1 km from the Project area (ALA 2013b). In addition, suitable habitat is not present within the Project area.
Common sandpiper, *Actitis hypoleucos*	Species or species habitat known to occur within area.	Migratory, Marine	Shallow, pebbly, muddy or sandy edges of rivers and streams, coastal to far inland; dams, lakes, sewage ponds; margins of tidal rivers; waterways	**Likely** The Project area is within the known species' range (BirdLife 2007a) however,

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			in mangroves or saltmarsh; mudflats; rocky or sandy beaches; causeways, riverside lawns, drains and street gutters (Pizzey and Knight 1999).	no records exist within the Project area, with the closest record being approximately 3.5 km from the Project area (ALA 2017b).
Fork-tailed swift, *Apus pacificus*	Species or species habitat likely to occur within area.	Migratory, Marine	Almost exclusively aerial species, flying from less than 1m to at least 300m above the ground. In Australia, they mostly occur over inland plains but sometimes above foothills or in coastal areas. They often occur over cliffs and beaches and also over islands and sometimes well out to sea. They also occur over settled areas, including towns, urban areas and cities. They mostly occur over dry or open habitats, including riparian woodland and tea-tree swamps, low scrub, heathland or saltmarsh (SPRAT 2010).	**Likely** The Project area is within the known species' range (BirdLife 2018b), with the closest recent record being approximately 4 km from the Project area (ALA 2019e). The species may fly over the Project area.
Flesh-footed shearwater, *Ardenna carneipes*	Species or species habitat likely to occur within area.	Migratory, Marine	A marine and pelagic species recorded in sub-tropical waters. Breeding may occur within the Australasian region where nests are made in burrows on gentle to steep slopes, where burrowing is not restricted by dense vegetation, deep litter or bare rock (NPWS 1999).	**Unlikely** The Project area is within the known species' range (BirdLife 2019b) however, no records exist within the Project area, with the closest record being approximately 13 km away (ALA 2020g). It is probable that the dense coverage of cottonwood trees renders the Project area unsuitable for burrowing by shearwaters.
Great frigatebird, *Fregata minor*	Species of species habitat likely to occur within area.	Migratory, Marine	It is a widespread seabird, with major colonies in the Indian Ocean, West and Central Pacific and Southern Atlantic. They inhabit remote islands in tropical and sub-tropical seas, where it breeds in small bushes, mangroves and even on the ground. Outside the breeding season it is sedentary, with immature and non-breeding	**Likely** The Project area is within the known species' range (BirdLife 2016j) however, no recent records exist within the Project area, with the closest record being approximately 2 km away (ALA 2016). Marginal habitat is present within

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			individuals dispersing throughout tropical seas. (www.archive.org)	the Project area consisting of moderate shrub cover.
Latham's snipe, *Gallinago hardwickii*	Species or species habitat likely to occur within area.	Migratory, Marine	Latham's Snipe is a non-breeding visitor to south-eastern Australia, and is a passage migrant through northern Australia. This species has been recorded along the east coast of Australia from Cape York Peninsula through to south-eastern SA. It occurs in permanent and ephemeral wetlands up to 2000m ASL, where they usually inhabit open, freshwater wetlands with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around bogs and other water bodies). They can also occur in habitats with saline or brackish water, in modified or artificial habitats, and in habitats located close to humans or human activity (DoE 2023ar).	**Unlikely** The Project area is within the known species' range (BirdLife 2022) however, no records exist within the Project area, with the closest record being approximately 7 km away (ALA 2021c). In addition, suitable habitat is not present within the Project area.
Lesser frigatebird, *Fregata ariel*	Species or species habitat known to occur within area.	Migratory, Marine	It is a widespread seabird, with major colonies in the Indian Ocean, West and Central Pacific and Southern Atlantic. They inhabit remote islands in tropical and sub-tropical seas, where it breeds in small bushes, mangroves and even on the ground. Outside the breeding season it is sedentary, with immature and non-breeding individuals dispersing throughout tropical seas. (www.archive.org)	**Likely** The Project area is within the known species' range (BirdLife 2016i) however, no records exist within the Project area, with the closest record being approximately 1 km away (ALA 2013c). Marginal habitat is present within the Project area consisting of moderate shrub cover.
Little curlew, *Numenius minutus*	Foraging, feeding or related behaviour likely to occur within area.	Migratory, Marine	Dry grasslands, floodplains, margins of drying swamps; tidal mudflats, airfields, playing fields, crops, commercial saltfields and sewage ponds (Pizzey and Knight 1999).	**Unlikely** The Project area is within the known species' range (BirdLife 2007b) however, no records exist within the Project area. In addition, suitable habitat is not present within the Project area.

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
Little tern, *Sternula albifrons*	Species or species habitat may occur within area.	Migratory, Marine	Inhabits coastal waters, bays, inlets, saline or brackish lakes, saltfields and sewage ponds near coast throughout northwest, north, east and southeast Australia (Pizzey and Knight 1999). It can also be found further inland, sometimes up to several kilometres from the sea.	**Known** The Project area is within the known species' range (BirdLife 2019d) and there is a record of three individuals from 2017 (WildNet).
Oriental cuckoo, *Cuculus optatus*	Species or species habitat may occur within area.	Migratory	Within Australia, this species uses a range of vegetated habitats such as monsoon rainforests, wet sclerophyll forest, open woodlands and appears quite often along edges of forests, or ecotones between forest types (DoE 2015; Menkhorst et al,. 2017). This cuckoo species feeds arboreal, foraging for invertebrates on loose bark on the trunks and branches of trees, and among the foliage, including in mistletoes. It will forage from the ground, but requires shrubs or trees from which it sallies and returns to consume prey items. Caterpillars have been noted as a preferred food source. Oriental cuckoos tend to forage individually and have only been recorded foraging in pairs when infestations of caterpillars occur (DoE 2015).	**Unlikely** The Project area is within the known species' range (BirdLife 2021b) however, no records exist within the Project area (ALA 2023as). In addition, no suitable habitat is present within the Project area.
Osprey, *Pandion haliaetus*	Breeding known to occur within area.	Migratory, Marine	The osprey is thinly distributed around the coast of Australia where they forage for fish in fresh, brackish, or saline waters of rivers, lakes, estuaries and inshore coastal waters (Schodde and Tidemann, 1993; NPWS, 2000). Nests are usually located near a suitable area of foraging habitat and are a bulky structure made from piled sticks, often positioned in a tall dead tree or artificial structures such as telecommunication towers or poles (Schodde and Tidemann, 1993; NPWS, 2000). Breeding pairs defend breeding territory	**Known** The Project area is within the known species' range (BirdLife 2021a) with multiple records within 1km of the Project area. There is a recent record of osprey within the Pilot Study area (ALA 2020h, WildNet).

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			against other ospreys, and active nests are usually more than 1 km apart (NPWS, 2005).	
Pacific golden plover, *Pluvialis fulva*	Foraging, feeding or related behaviour known to occur within area.	Migratory, Marine	This species usually inhabits coastal habitats, though it occasionally occurs around inland wetlands. Usually occur on beaches, mudflats and sandflats in sheltered areas including harbours, estuaries and lagoons, and also in evaporation ponds in saltworks. The species is also sometimes recorded on islands, sand and coral cays and exposed reefs and rocks. Breeding occurs in dry areas of tundra away from the coast, usually on slopes of low hills, knolls or foothills vegetated with lichen and moss, or in bare, stony areas (DoE 2023as).	**Likely** The Project area is within the known species' range (BirdLife 2019c) however, no recent records exist within the Project area, with the closest record being approximately 2.5 km away (ALA 2019f). Suitable habitat is present.
Pectoral sandpiper, *Calidris melnotos*	Species or species habitat likely to occur within area.	Migratory, Marine	This species if found in shallow fresh waters, often with low grass and other herbage; swamp margins, flooded pastures, sewage ponds; occasionally tidal areas and saltmarshes (Pizzey and Knight 1999).	**Unlikely** The Project area is within the known species' range (eBird 2023) however, no records exist within the Project area, with the closest record <5 km to the north (ALA 2020i). There is no suitable habitat present.
Pin-tailed snipe, *Gallinago stenura*	Foraging, feeding or related behaviour likely to occur within area.	Migratory, Marine	During the breeding season the Pintail Snipe is found in damp marshes and tundra, while outside of the breeding season, it inhabits a wider variety of wetlands, including flooded fields, wet grasslands, swamps and marshland (www.arkive.org).	**Unlikely** The Project area is outside of the known species' range as it breeds in northern Russia and migrates to as far south as north-western Australia (eBird 2023). No records exist within the Project area, the closest record is in Far North Queensland from 1988 (ALA 1988).
Ruddy turnstone, *Arenaria interpres*	Foraging, feeding or related behaviour known to occur within area.	Migratory, Marine	Winters on Australian coastlines. Tidal reefs and pools, weed covered rocks, pebbly shelly and sandy shores with stranded seaweed, mudflats,	**Known** The Project area is within the known species' extensive range (eBird 2023).

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			occasionally inland on shallow waters, sewage ponds, commercial saltfields, open or ploughed ground (Pizzey and Knight 1999).	Records exist within 1 km of the Project area in South Shelly Beach (ALA 2020j).
Rufous fantail, *Rhipidura rufifrons*	Species or species habitat known to occur within area.	Migratory, Marine	The rufous fantail occurs in coastal and near coastal districts of northern and eastern Australia. In eastern Australia they inhabit wet sclerophyll forests often in gullies dominated by eucalyptus species, usually with a dense shrubby understory often including ferns. They also occur in subtropical and temperate rainforests (DoE 2023 at).	**Likely** The Project area is within the known species' range (eBird 2023). No records exist within the Project area however, 2 records exist within 2 km to north-west of the Project area in Moffat Beach (ALA 2002, WildNet).
Satin flycatcher, *Myiagra cyanoleuca*	Species or species habitat known to occur within area.	Migratory, Marine	Satin flycatchers inhabit heavily vegetated gullies in eucalypt-dominated forests and taller woodlands, and on migration, occur in coastal forests, woodlands, mangroves and drier woodlands and open forests (DoE 2023au).	**Potential** The Project area is within the known species' range (eBird 2023). No records exist within the Project area however, 4 records exist within 5 km of the Project area (ALA 2009). Habitat is marginal.
Sharp-tailed sandpiper, *Calidris acuminata*	Species or species habitat likely to occur within area.	Migratory, Marine	The sharp-tailed sandpiper breeds in northern Siberia but migrates south to winter in Australia and New Zealand. In the non-breeding season they can be found in tidal mudflats, saltmarshes, mangroves; shallow fresh, brackish or saline inland wetlands; floodwaters, irrigated pastures and crops; sewage ponds and saltfields (Pizzey and Knight 1999).	**Likely** The Project area is within the known species' range (eBird 2023). No records exist within the Project area however, 1 record exists within 1 km of the Project area in South Shelly Beach (ALA 2006).
Sooty shearwater, *Ardenna grisea*	Species or species habitat may to occur within area.	Migratory, Marine	The sooty shearwater has an exceptionally wide distribution, being found in most major oceans except for the northern parts of the Indian Ocean. It breeds on islands off New Zealand, Australia and southern Chile. They are oceanic birds, typically found far from land, apart from during	**Unlikely** The Project area is within the known species' range (eBIrd 2023). No records exist within 20 km of the Project area, with the nearest on Fraser Island (ALA 2000).

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			the breeding season when they can be found on islands and headlands (www.arkive.org).	
Spectacled monarch, *Symposiachrus trivirgatus*	Species or species habitat known to occur within area.	Migratory, Marine	The spectacled monarch prefers dense vegetation, mainly in rainforest but also in moist forest or wet sclerophyll and occasionally in other dense vegetation such as mangroves, drier forest and woodlands (www.birdsinbackyards.net).	**Knwon** The Project area is within the known species' range (eBird 2023) and there are records from 2003 (WildNet and ALA).
Streaked shearwater, *Calonectris leucomelas*	Species or species habitat known to occur within area.	Migratory, Marine	This species is abundant off the north coasts of Australia from November to May. Occurs on the west and east coasts in summer (Pizzey and Knight 1999). Species is abundant off northern Australian coasts.	**Likely** The Project area is within the known species' range (eBird 2023). No recent records exist within the Project area however, 1 record exists within 1 km to the south of the Project area from 1984 (ALA, WildNet).
Swinhoe's snipe, *Gallinago megala*	Foraging, feeding or related behaviour likely to occur within area.	Migratory, Marine	During the non-breeding season this species occurs at the edge of wetlands, such as wet paddy fields, swamps and freshwater streams. The species is also known to occur in grasslands, drier cultivated areas (including crops of rapeseed and wheat) and market gardens (Higgins & Davies 1996). Habitat specific to Australia includes the dense clumps of grass and rushes around the edges of fresh and brackish wetlands. This includes swamps, billabongs, river pools, small streams and sewage ponds. They also found in drying claypans and inundated plains pitted with crap holes (Higgins & Davies 1996).	**Unlikely** The Project is outside of the known species' range (BirdLife 2013d) and no suitable habitat is present within the Project area.
Wandering tattler, *Tringa incana*	Foraging, feeding or related behaviour known to occur within area.	Migratory, Marine	Found on rocky coasts with reefs and platforms, points, spits, piers, offshore islands and shingle beaches or beds. Forages among rocks or shingle, or in shallow pools at edges of reefs or beaches (SPRAT, 2010).	**Known** The Project is within the known species' range (BirdLife 2013f) and recent records exist approximately <1km (ALA 2023at, WildNet 2021).

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
White-tailed tropicbird, *Phaethon lepturus*	Species or species habitat may occur within area.	Migratory, Marine	The White-tailed Tropicbird occupies marine habitats in tropical waters with sea-surface temperatures of more than 22 degrees. This species breeds on island and atolls, where it nests in a variety of habitats including the bare sandy ground, in closed-canopy rainforests, on rocky cliffs and in quarries (SPRAT, 2022).	**Unlikely** The Project is within the known species' range (BirdLife 2016k) however, no records exist within the Project area (ALA 2023au). Marginal habitat (bare sandy ground) is present within the Project area but is very limited and disturbed therefore not suitable.
Migratory Mammals				
Australian Humpback Dolphin, *Sousa sahulensis*	Breeding known to occur within area.	Migratory, Marine	The Australian humpback dolphin is distributed to the east of the Wallace Line including southern Papua New Guinea and Northern Australia, from Exmouth in Western Australia to the Queensland-New South Wales border (DPIRD 2023). The 'inshore' species inhabits shallow, near shore water, often associated with river mouths, mangroves, tidal channels and inshore reefs (DPIRD 2023).	**Unlikely** The species is entirely marine and not likely to be present within the Project area
Australian Snubfin Dolphin, *Orcaella heinsohni*	Species or species habitat may occur within area.	Migratory, Marine	Within Australia, the Australian Snubfin Dolphin has been recorded almost exclusively in coastal and estuarine waters. It is doubtful that they venture very far upstream in river systems, although occasional vagrants may venture upstream. They have been found in the shallow coastal waters and estuaries along the Kimberly coast. Beagle and Pender Bays on the Dampier Peninsula and tidal creeks around Yampi Sound and between Kuri Bay and Cape Londonderry are important areas for the species (SPRAT 2017).	**Unlikely** The species is entirely marine and not likely to be present within the Project area
Bryde's Whale, *Balaenoptera edeni*	Species or species habitat may occur within area.	Migratory, Marine	The Bryde's whale can be found in tropical and sub-tropical waters throughout the Atlantic, Pacific and Indian Oceans. There appear to be two	**Unlikely**

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			distinct habitat preferences amongst Bryde's whales, with some populations, usually comprising smaller-bodied individuals, occurring in coastal waters, while other populations can be found in the open ocean, however all Bryde's whales have a preference for warmer water above 16.3 Degrees Celsius (www.arkive.org).	The species is entirely marine and not likely to be present within the Project area
Dugong, *Dugong dugon*	Species or species habitat known to occur within area.	Migratory, Marine	The dugong occurs in shallow, warm (18ºC or above) tropical and sub-tropical coastal waters of the Indian and western Pacific Oceans, with a range in Australia from Shark Bay, Western Australia to Moreton Bay, Queensland. The species is generally observed within wide shallow protected bays and mangrove channels that support extensive sea grass meadows (DECC, 2008). Reported to use shallow waters such as tidal sandbanks and estuaries for calving (DECC, 2008).	**Unlikely** The species is entirely marine and not likely to be present within the Project area
Humpback Whale, *Megaptera novaeangliae*	Species or species habitat known to occur within area.	Migratory, Marine	Occurs in oceanic and coastal waters around the world. Australia has two distinct Humpback Whale populations which throughout all coastal waters surrounding Australia; east coast and west coast. Camden sound appears to be the northern most limit for the majority of the west coast whales and is considered to be an important breeding area. The migratory habitat for the humpback whale around mainland Australia is primarily coastal waters less than 200m in depth and generally within 20km of the coast (SPRAT, 2000).	**Unlikely** The species is entirely marine and not likely to be present within the Project area
Killer Whale, *Orcinus orca*	Species or species habitat may occur within area.	Migratory, Marine	The orca is found throughout all the world's oceans. The orca occurs in virtually every marine	**Unlikely**

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			region, from polar waters to the equator, and has even been known to enter bays, estuaries and rivers, as well as ice floes. However, it is most commonly recorded in coastal, temperate waters and in areas of high productivity (www.arkive.org).	The species is entirely marine and not likely to be present within the Project area
Reptile				
Turtle-headed seasnake, *Emydocephalus annulatus*	Species or species may occur within area.	Marine	The species occurs from Shark Bay in Western Australia to the southern Great Barrier Reef (Cogger 1975; Storr et al. 1986). The species usually occurs in water that is shallower than 10 m, at the edges of lagoons amongst coral outcrops (Guinea 1996; McCosker 1975) and reef flats at high tide (Guinea and Whiting 2005).	**Unlikely** The Project area is outside the known species' range (IUCN 2010 and no suitable habitat is present within the Project area.
Yellow-bellied seasnake, *Pelamis platurus*	Species or species habitat may occur within area.	Marine	The species is widely distributed and is found in most Australian waters. The greatest density exists south of the tropics where the species is commonly found on beaches after storms (Storr et al. 1986). The species is usually found within a few kilometers of the coast and prefers shallow inshore waters found to be between 11.7–36°C. Nevertheless, the species is the most pelagic of all known sea snakes, occurring in the open waters well away from coasts and reefs (Karthikeyan and Balasubramanian 2007).	**Unlikely** The Project area is outside the known species' range (IUCN 2010 and no suitable habitat is present within the Project area.
Migratory Fish				
Giant Manta Ray, *Mobula birostris*	Species or species habitat may occur within area.	Migratory, Marine	This species is believed to have a wider distribution than the closely related reef manta ray, and is more migratory in its behaviour. It appears to be a seasonal visitor to coastal and	**Unlikely** The species is entirely marine and not likely to be present within the Project area.

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			offshore sites, and is commonly seen along productive coastlines with regular upwellings, as well as around oceanic islands, offshore pinnacles and seamounts (www.arkive.org).	
Oceanic Whitetip Shark, *Carcharhinus longimanus*	Species or species habitat may occur within area.	Migratory, Marine	Widespread in tropical and warm temperate waters (usually in waters above 20 C) of all oceans - usually well offshore beyond the continental shelf between about 30°N and 35°S, or around oceanic islands. The species occurs at depths from the surface to 150 m. Oceanic Whitetip Sharks rarely come close to land. In Australia, the species occurs mostly in oceanic areas off northern Australia (rare or absent in the Arafura Sea and Gulf of Carpentaria); recorded off South Australia but usually rare off the southern coast (Bray 2017a).	**Unlikely** The species is entirely marine and not likely to be present within the Project area
Porbeagle, *Lamna nasus*	Species or species habitat may occur within area.	Migratory, Marine	The species is wide-ranging, and inhabits temperate, subarctic and subantarctic waters of the North Atlantic and Southern Hemisphere (Francis et al. 2002). In Australia, the species occurs in waters from southern Queensland to south-west Australia (Last and Stevens 2009). The species typically inhabits oceanic waters off the continental shelf, although they occasionally enter coastal waters (Francis et al. 2002). The species is considered to be flexible in the types of habitat used for foraging (Pade et al. 2009). The surface temperatures of waters inhabited by the Porbeagle typically range from 8-20° C (but has been caught at 2-23° C).	**Unlikely** The species is entirely marine and not likely to be present within the Project area
Reef Manta Ray, *Mobula alfredi*	Species or species habitat may occur within area.	Migratory, Marine	The reef manta ray is found in tropical and sub-tropical waters in the Pacific and Indian Oceans.	**Unlikely**

Species Name	PMST Search	EPBC Act Status	Habitat and Ecology	Likelihood of Occurrence
			However, within this widespread range its populations appear to be quite patchy This species is quite widespread in the Indian Ocean, from the Red Sea in the north to South Africa in the south, and from Thailand southwards to Western Australia. It is more commonly found in shallow inshore waters and typically occurs around coastal reefs, tropical island groups, atolls, bays and productive coastlines (www.arkive.org).	The species is entirely marine and not likely to be present within the Project area

Appendix C

Protected Plants Survey Report

Our Ref: 6495

22/06/2023

Protected Plants Survey Report

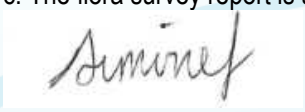
North Shelly Beach Vegetation Management

Shelly Beach Foreshore Reserve, QLD 4551

Client: Sunshine Coast Council

Future-Plus Environmental
4/40 Technology Drive, Warana QLD 4575

I certify that:
a. I have adhered to all statutory requirements and flora survey guideline requirements; and
b. In the area surveyed I have ***not*** found plants (as detailed in this report) that are currently listed as extinct, extinct in the wild, critically endangered, endangered, vulnerable or near threatened in the *Nature Conservation (Plants) Regulation 2020*; and
c. The flora survey report is an accurate and full account of the flora survey



Simone Forman (Suitably Qualified Person)

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Signed on behalf of
Future-Plus Environmental

Date: 22 June 2023

Paul Wood
Director

DOCUMENT CONTROL INFORMATION

Project Number: 6495

Project Manager: Simone Forman

Client: Sunshine Coast Council

Report Title: Protected Plants Survey Report

Report Authors: Simone Forman, Dr Sarah Ball

Project Summary: Protected plants survey in accordance with DES *Flora Survey Guidelines – Protected Plants* associated with vegetation management in the North Shelly Beach Foreshore Reserve.

Site Address: Shelly Beach Foreshore Reserve, Ocean/Beachside Court, QLD 4551

Document Review

Document Version	Document Status	Author	Reviewed By	Approved By
6495-230619-0.1	Draft	Simone Forman Dr Sarah Ball	Kaine Pritchard	Paul Wood

Issue Approval

Destination	Document Version	Date Dispatched
SCC – Digital Copy	6495-230619-0.1	22 June 2023

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EXECUTIVE SUMMARY

Sunshine Coast Council (SCC) commissioned Future-Plus Environmental (FPE) to undertake a flora survey in accordance with the *Flora Survey Guidelines – Protected Plants* (DES 2020). The field survey was conducted to assess the impact area for upcoming vegetation management works within the Shelly Beach Foreshore Reserve (Northern extent) associated with the improvement of turtle nesting habitat. The field survey was undertaken on 7 June 2023. No Critically Endangered, Endangered, Vulnerable or Near Threatened (CEEVNT) species under the *Nature Conservation Act 1992* (NC Act) or *Environment Protection and Biodiversity Conservation Act 1999* (EBPC Act) were identified within the nominated impact area or the surrounding 100m buffer. An *Exempt clearing notification (protected plants)* form must be completed by SCC and submitted to DES with this report as supporting evidence prior to disturbance/clearing associated with vegetation management activities.

1.0 INTRODUCTION

FPE was engaged to undertake a protected plants survey in accordance with the Department of Environmental and Science's (DES) *Flora Survey Guidelines – Protected Plants* (referred to as the Guidelines), associated with vegetation management works within the Shelly Beach Foreshore Reserve (Northern extent). The purpose of vegetation management is to improve turtle nesting habitat on Shelly Beach. The project area is contained within Lot 9 on SP100298 (refer pink polygon, **Figure 1**), reserve tenured land approximately 1.6 hectares in size. The proposed works includes a 'Pilot Site' (refer blue polygon, **Figure 1**), where more detailed management and monitoring will occur. The entire project area is mapped as a 'high risk area' on the protected plants trigger mapping (**Figure 2**). A detailed site plan is included as **Appendix A**.

Figure 1. Site Locality Plan

Figure 2. Protected Plants Trigger Mapping

2.0 METHODOLOGY

2.1 DESKTOP ASSESSMENT

Prior to undertaking field surveys, a desktop assessment was undertaken to:

- Identify vegetation communities likely to occur within the survey area; and
- Identify any critically endangered, endangered, vulnerable to extinction or near threatened (CEEVNT) flora species or their preferred habitat likely to occur within the survey area.

The desktop assessment included searches of a range of environmental databases and mapping sources, including (but not limited to):

- Atlas of Living Australia Explore Your Area search tool.
- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Protected Matters Report (EPBC Act PMR);
- Regional Ecosystem (RE) mapping;
- Topographic and geological mapping;
- Wildnet Database; and
- Australasian Virtual Herbarium (AVH).

Copies of relevant public database search results are provided in **Appendix B**.

2.2 FIELD SURVEY

Flora surveys were conducted on 7 June 2023 to confirm whether any conservation significant flora species that are currently listed as extinct, extinct in the wild, critically endangered, endangered, vulnerable or near threatened in the *Nature Conservation (Plants) Regulation 2020* were present.

The survey was conducted under the lead of suitably qualified person, Simone Forman (Senior Ecologist), as required under Section 253(2) of the *Nature Conservation Act 1992* (NC Act),and assisted by Experienced Ecologist Dr Sarah Ball. The curriculum vitae for Simone has been provided in **Appendix C**.

The flora survey was conducted in accordance with the DES *Flora Survey Guidelines – Protected Plants* (DES 2020), and a timed meander survey (see Section 6.2.2 of the Guidelines) was judged the most appropriate survey method for the type and nature of the site vegetation. Each habitat type was traversed in a random manner so as to maximise the coverage of habitat and the encounter rate of different species. As per the Guideline, the meander survey was undertaken at the following rate per area of habitat type: <2ha, one meander. A total of 4-hours was spent searching across all habitat types encountered.

2.3 TIMING & LIMITATIONS

The fieldwork was undertaken in early winter. The target CEEVNT species for this particular site are considered distinct, even outside of flowering events, i.e., *Phaius australis* is a large distinctive ground orchid that can be readily identified when not in flower. Timing of the survey did not impede identification of most species present, including grasses and graminoids.

3.0 DESKTOP ASSESSMENT

3.1 VEGETATION MAPPING

Reference to the Department of Resource's Vegetation Management RE mapping for the site indicates that the survey area is mapped as a heterogeneous polygon (70/30%) for the following regional ecosystems:

- RE 12.9-10.4 – *Eucalyptus racemosa* subsp. *racemosa* woodland on sedimentary rocks; and
- RE 12.9-10.22 – Closed sedgeland and/or shrubland on sedimentary rocks. Generally coastal.

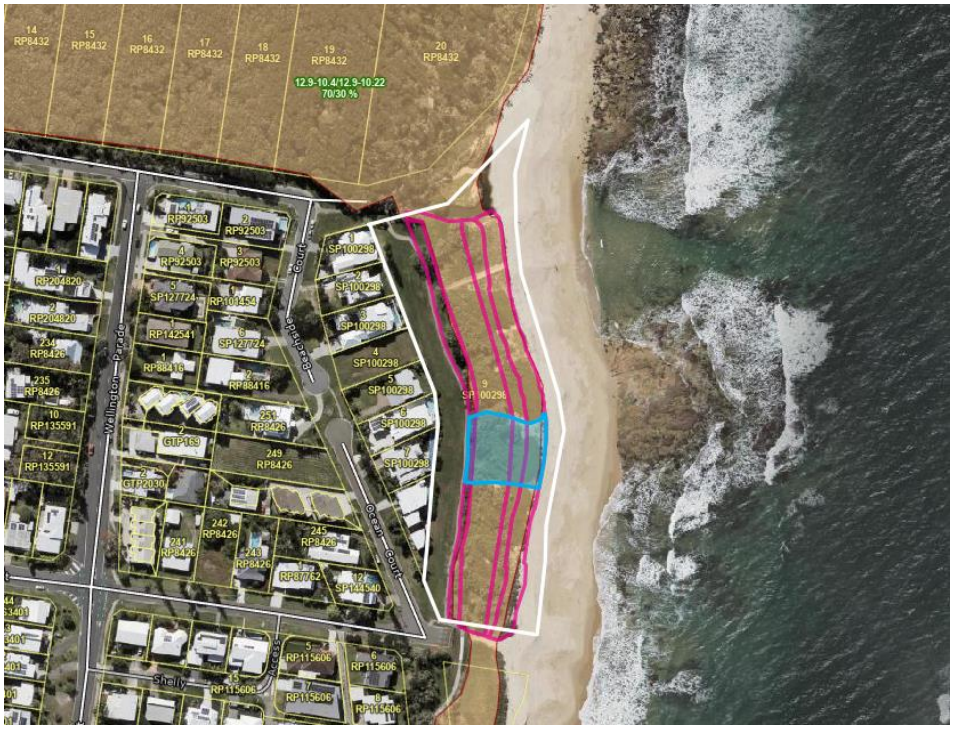


Figure 3. Regional Ecosystem Mapping (Source: DoR 2023)

3.2 WILDNET DATABASE

A search of the DES Wildnet database was conducted on 01 June 2023, including a 1km radial buffer from the bounds of Lot 9/SP100298. No CEEVNT species have records within the search area. One species listed as Special Least Concern (SL) was recorded, *Burmannia disticha*.

3.3 EPBC ACT PMR

An EPBC Act Protected Matters search was conducted on 01 June 2023, including a 1km radial buffer from the bounds of Lot 9/SP100298. No CEEVNT species or their habitat was identified as 'known to occur' within the feature area. Eight species were listed as 'likely to occur'. These species have been considered as part of the Likelihood of Occurrence assessment in **Section 4** of this document

3.4 ATLAS OF LIVING AUSTRALIA

A search of the Atlas of Living Australia (ALA) explore your area search tool within a 1km radius of the clearing impact area did not include any CEEVNT species records. The search was extended to 5km, and the following species had records:

- *Zieria exsul* (Banished Stink Bush) – All records >2.5km off the coastline;
- *Allocasuarina emuina* (Mount Emu She-oak) – All records from Kathleen McArthur Conservation Park; and
- *Acacia attenuata* (Attenuate Wattle) – Records from Currimundi and Caloundra West areas.

4.0 CEEVNT LIKELIHOOD OF OCCURRENCE ASSESSMENT

A list of CEEVNT flora species identified through desktop assessments as potentially occurring within the vicinity of the survey area has been provided in **Table 1** below. The assessment of the likelihood of occurrence of each of these species was undertaken to determine target species for the field surveys. This assessment takes into consideration known species distribution and habitat preferences/requirements, as well as herbarium specimen records and confirmed records from Wildnet / ALA databases. The following scale was generally used to assist with determining the likelihood of occurrence:

- **Low likelihood** – No suitable habitat mapped and no local records;
- **Moderate likelihood** – Suitable habitat mapped, no local records; and
- **High likelihood** – Suitable habitat mapped with local records.

Table 1. Listed CEEVNT Species & Likelihood of Occurrence

Species Name	NC Act	EPBC Act	Source	Likelihood of Occurrence
Acacia attenuata (Attenuate Wattle)	V	V	EPBC Act PMR ALA	**Low likelihood** – Species occurs on coastal lowland plains at altitudes lower than 30m asl and typically occurs on seasonally waterlogged areas, specifically on poorly drained sandy soils or infertile peat swamps (DCCEEW 2023). Preferred habitat not mapped, local records >4km km away.
Allocasuarina emuina (Mt Emu She-oak)	E	E	ALA	**Low Likelihood** – Occurs in open and closed heath/wallum heath on undulating coastal plains. It can occur on soils ranging between sands to light and medium clays ((DCCEEW 2023). No mapped suitable habitat. Local records are from Kathleen McArthur Conservation Park, approx. 5km to the north.
Arthraxon hispidus (Hairy Joint Grass)	V	V	EPBC Act PMR	**Low Likelihood** – This species is typically found near wetlands including mound springs and sometimes in wet eucalypt forests and rainforests (Herbarium records and DES 2019). There are Queensland Herbarium records from two localities on the Sunshine Coast but these are > 70 years old and there have been no subsequent specimen-backed sightings. Due to the lack of suitable habitat and previous records it is considered a low likelihood of occurrence.
Bosistoa transversa (Yellow Satinheart)	LC	V	EPBC Act PMR	**Low Likelihood** – This species inhabits rainforests and wet sclerophyll forests up to 300m in altitude (DES 2022), with alluvial soils or relatively fertile soil derived from basic and sub-basic volcanic rocks. No suitable habitat is mapped in the project area or surrounding locality, no local records.

Species Name	NC Act	EPBC Act	Source	Likelihood of Occurrence
Phaius australis (Lesser Swamp Orchid)	E	E	EPBC Act PMR	**Low Likelihood** – This species grows in *Melaleuca quinquenervia* swamps (Leiper *et al.* 2017) (information accompanying herbarium records available in the Australian Virtual Herbarium). It is a large, distinctive ground orchid that can be readily identified when not in flower. No mapped suitable habitat; no local records available.
Rhodamnia rubescens (Scrub Turpentine)	CR	CR	EPBC Act PMR	**Low Likelihood** – Species typically found in littoral, warm temperate, subtropical rainforests, and wet sclerophyll forests (NSW GOV 2019). It grows in understorey of tall Eucalyptus open-forest ("wet sclerophyll" type) and rainforest growing on infertile soils or at higher altitudes. There is no specimen backed records in southern QLD from coastal sands/dunes. Therefore, there is a low likelihood of occurrence.
Rhodomyrtus psidioides (Native Guava)	CR	CR	EPBC Act PMR	**Moderate Likelihood** – This species is typically found in warm littoral, temperate and subtropical rainforests, often near creek lines (NSW GOV 2019). Records of this species occurring on the Sunshine Coast are typically from sites in rainforest, including those on coastal sands. A specimen backed record of *R. psidioides* (January 2021) exists within foreshore vegetation to the north of the site in the Wurtulla Foreshore Reserve. Given the similar habitat potentially available and a recent record 5km to the north, a moderate likelihood of occurrence was assigned.
Samadera bidwillii (Quassia)	V	V	EPBC Act PMR	**Low Likelihood** – This species often grows in rainforest with *Araucaria cunninghamii* (DES 2022). There are no records of the species growing on sand. Further, the closest specimen-backed sighting is Wolvi near Gympie which is the southern limit of its distribution.
Zieria exsul (Banished Stink Bush)	E	E	EPBC Act PMR	**Moderate Likelihood** – Restricted to lowland wallum woodland and open forest on sandy substrates that are often seasonally waterlogged and are usually found in ecotones between moist areas and better drained habitats. Dominant canopy species recorded include *C. intermedia, E. racemosa, E. robusta, S. glomulifera* (DCCEW 2021). Suitable habitat mapped, records from Currimundi to the north.

5.0 FIELD SURVEY RESULTS

5.1 EXISTING VEGETATION COMMUNITIES & TIMED MEANDER SURVEY

Results of the timed meander survey are summarised in **Table 2** below. The location of the survey area and meander points is included on the survey plan in **Appendix A**.

Table 2. Summary of Meander Surveys

RE 12.2.14 – Fore Dune Complex (Sites T1 – T3)		
Coastal foreshore dune complex parallel to Shelly Beach –*C. equisetifolia* and *P. tectorius* common particularly on the landward edges, otherwise dominated by low foredune complex species. Occasional Patches of dense low/wind sheared *Hibiscus tiliaceus* (Cotton Tree).		
Landform/Geology	Coastal dune with sand deposits.	
Mapped RE	RE 12.9-10.4 / 12.9-10.22 – *Eucalyptus racemosa* subsp. *racemosa* woodland on sedimentary rocks (70%) / Closed sedgeland and/or shrubland on sedimentary rocks. Generally coastal (30%).	
Observed RE	RE 12.2.14 – Strand and fore dune complex comprising *Spinifex sericeus* grassland *Casuarina equisetifolia* subsp. *incana* low woodland/open forest +	
T1 – Southern Extent of Project Area		
		
T1	*Casuarina equisetifolia* subsp. *incana* *Pandanus tectorius*	Beach She-Oak Screw Pine
Shrub	*Scaevola calendulacea* *Wollastonia uniflora*	Beach Scaevola Beach Daisy
Ground Cover	*Canavalia rosea* *Carpobrotus glaucescens* *Dianella congesta* *Emilia sonchifolia*	Coastal Jack Bean Coastal Pigface Dune Flax Lily Red tassel-flower

	Euphorbia heterophylla	Painted Spurge
	Gloriosa superba	Glory lily
	Ipomoea pes-caprae subsp. *brasiliensis*	Goats Foot Morning Glory
	Macroptilium atropurpureum	Siratro
	Spinifex sericeus	Beach Spinifex
	Stephania japonica	Snake Vine
	Vigna marina	Dune Bean
	Zoysia macrantha	Coastal Couch

T2 – Central Foreshore

Similar floristic composition as T1 + additional new species listed below:

Cakile maritima	European Searocket
Hibiscus tiliaceus	Cotton tree
Sphagneticola trilobata	Singapore daisy

T3 – Northern Extent of Foreshore

Similar floristic composition as T1/T2 + additional new species listed below:

Imperata cylindrica	Blady Grass
Acacia sophorae	Coastal Wattle
Euphorbia chamaesyce	Spurge
Asparagus aethiopicus	Ground Asparagus

RE 12.2.14 – Vegetation Complex of Exposed Headlands, Wind-sheared Woodland (Sites T4 – T5)	
Headland vegetation on Landsborough Sandstone, includes more sheltered lower slope (T4) and exposed wind-sheared vegetation upslope (T4a).	
Landform/Geology	Landsborough Sandstone (Unit RJl)
Mapped RE	RE 12.9-10.4 / 12.9-10.22 – *Eucalyptus racemosa* subsp. *racemosa* woodland on sedimentary rocks (70%) / Closed sedgeland and/or shrubland on sedimentary rocks. Generally coastal (30%).
Observed RE	The closest fit is RE 12.12.19x3 – Vegetation complex of exposed headlands. Vegetation types include *Themeda triandra* grassland and wind-sheared shrubland and woodland. Occurs on headlands of remnant Tertiary surfaces. The RE subtype "x3" is described as occurring on remnant Tertiary surfaces rather than volcanic rocks typical of Land Zone 12. The sandstone here may have been affected by Tertiary weathering.
T4 – Headland Vegetation	
	
T1	*Banksia integrifolia* subsp. *integrifolia* – Coast Banksia *Casuarina equisetifolia* – Coast She-Oak *Cupaniopsis anacardioides* – Tuckeroo *Elaeocarpus obovatus* – Blueberry ash *Ficus rubiginosa* – Port Jackson fig

	Macaranga tanarius	Macaranga
T2	*Archontophoenix cunninghamiana*	Bangalow Palm
	Acacia concurrens	Black Wattle
	Acacia leiocalyx	Early Black Wattle
	Alectryon coriaceus	Beach Alectryon
	Acronychia imperforata	Fraser Island Apple
	Cyclophyllum coprosmoides	Coast Canthium
	Pandanus tectorius	Screw Pine
	Parsonsia stramea	Monkey Vine
	Senna pendula var. glabrata	Easter Cassia
Shrub	*Ardisia elliptica*	Shoe Button Berry
	Asparagus aethiopicus	Asparagus Fern
	Austromyrtus dulcis	Midgen Berry
	Dianella congesta	Dune Flax Lily
	Gahnia aspera	Large-fruited sawsedge
	Hibbertia vestita	Hairy Guinea Bush
	Ochna serrulata	Ochna
	Passiflora foetida	Stinking Passionflower
	Psychotria loniceroides	Hairy Psychortira
	Themeda triandra	kangaroo grass
	Wollastonia uniflora	Beach Daisy
Ground Cover	*Cassytha* sp.	Dodder Vine
	Centella asiatica	Pennywort
	Chorizandra cymbaria	Heron Bristlerush
	Dianella congesta	Dune Flax Lily
	Eustrephus latifolious	Wombat Berry
	Imperata cylindrica	Blady Grass
	Lobelia purpurascens	White Root
	Lomandra laxa	broad-leaved matrush
	Poranthera microphylla	small poranthera
	Themeda triandra	kangaroo grass
T5 – Seaward Foreshore/Headland Vegetation on Sandstone		

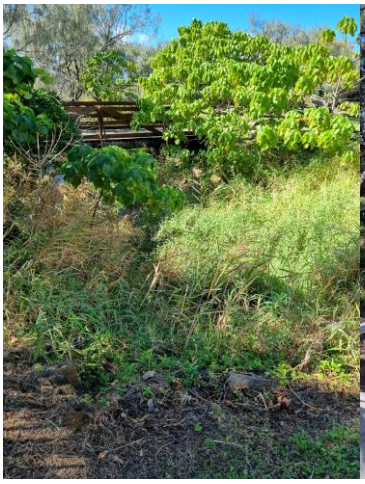
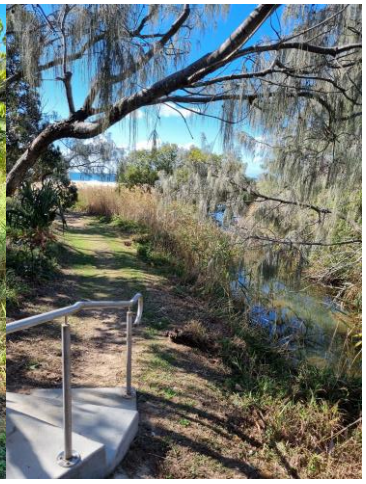
Seaward, wind-sheared foreshore vegetation on Landsborough Sandstone. *Casuarina equisetifolia* subsp. incanna, *Banksia integrifolia* subsp. *integrifolia* and *Pandanus tectorius* with *Ischaemum triticeum* grassland, in addition to the following in the shrub/ground stratum:

Chorizandra cymbaria	Heron Bristlerush
Exocaria agallocha	Milky Mangrove
Gazania sp.	African Daisy
Ischaemum triticeum	Thigh-socket Grass
Myoporum boninense subsp. *australe*	Mangrove Boobialla
Sporobolus virginicus	Saltwater Couch

Tidal Drain / Watercourse

T6 – Drain/ Estuarine Watercourse & Accompanying Marine Plants

Predominantly weedy towards the road, overhanging *C. equisetifolia*. Minor *Avicennia marina* present. *Sporobolus viginicus* grassland on seaward extent. Receives stormwater from Beachside Court / Russel Street, in addition to periodic inundation from saltwater.


Avicennia marina	Grey mangrove
Cupaniopsis anacardioides	Tuckeroo
Macaranga tanarius	Macaranga
Phragmites australis	common reed
Sphagneticola trilobata	Singapore daisy
Sporobolus virginicus	Saltwater Couch
Urochloa mutica	Para Grass

6.0 DISCUSSION

The proposed works consists of vegetation management and rehabilitation within the Shelly Beach Foreshore Reserve to improve turtle nesting habitat. This is likely to include removal of dense thickets of *Hibiscus tiliaceus,* which overtime has encroached seaward down the frontal dune into the incipit dune, subsequently reducing areas suitable for turtle nesting. Where *Hibiscus tiliaceus* was dominant, species richness of typical dune species was reduced. Searches of the impact and buffer area during meander surveys did not locate any CEEVNT populations. The survey identified two distinct regional ecosystems, RE 12.2.14 – Strand and fore dune complex and RE 12.12.19x3 – Vegetation complex of exposed headlands, both of which did not match the RE mapping for the area.

7.0 CONCLUSION & RECOMMENDATIONS

Field surveys were conducted in accordance with DES *Flora Survey Guidelines – Protected Plants* (DES 2020). No CEEVNT species under the NC Act or EBPC Act were identified within the vegetation management area (impact area) or in the surrounding buffer during the survey. As such, no clearing permit and associated impact management plan is required for the North Shelly Beach Vegetation Management Project. An *Exempt clearing notification (protected plants)* form must be completed by SCC and submitted to DES with this report as supporting evidence prior to vegetation management works and associated disturbance.

8.0 REFERENCES

Department of Climate Change, Energy, the Environment and Water [DCCEEW] (2023). *Species Profile and Threats Database*. <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>

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Department of Environment and Science [DES] (2019). *Biomaps*. ESRI ArcGIS Web Application. <http://qldspatial.information.qld.gov.au/biomaps/>

DES (2020). *Flora Survey Guidelines – Protected Plants – Nature Conservation Act 1992*. Queensland Government. < https://www.qld.gov.au/__data/assets/pdf_file/0028/99901/gl-wl-pp-flora-survey.pdf>

DES (2022). *Species Profile Search*. Queensland Government. < https://apps.des.qld.gov.au/species-search/>

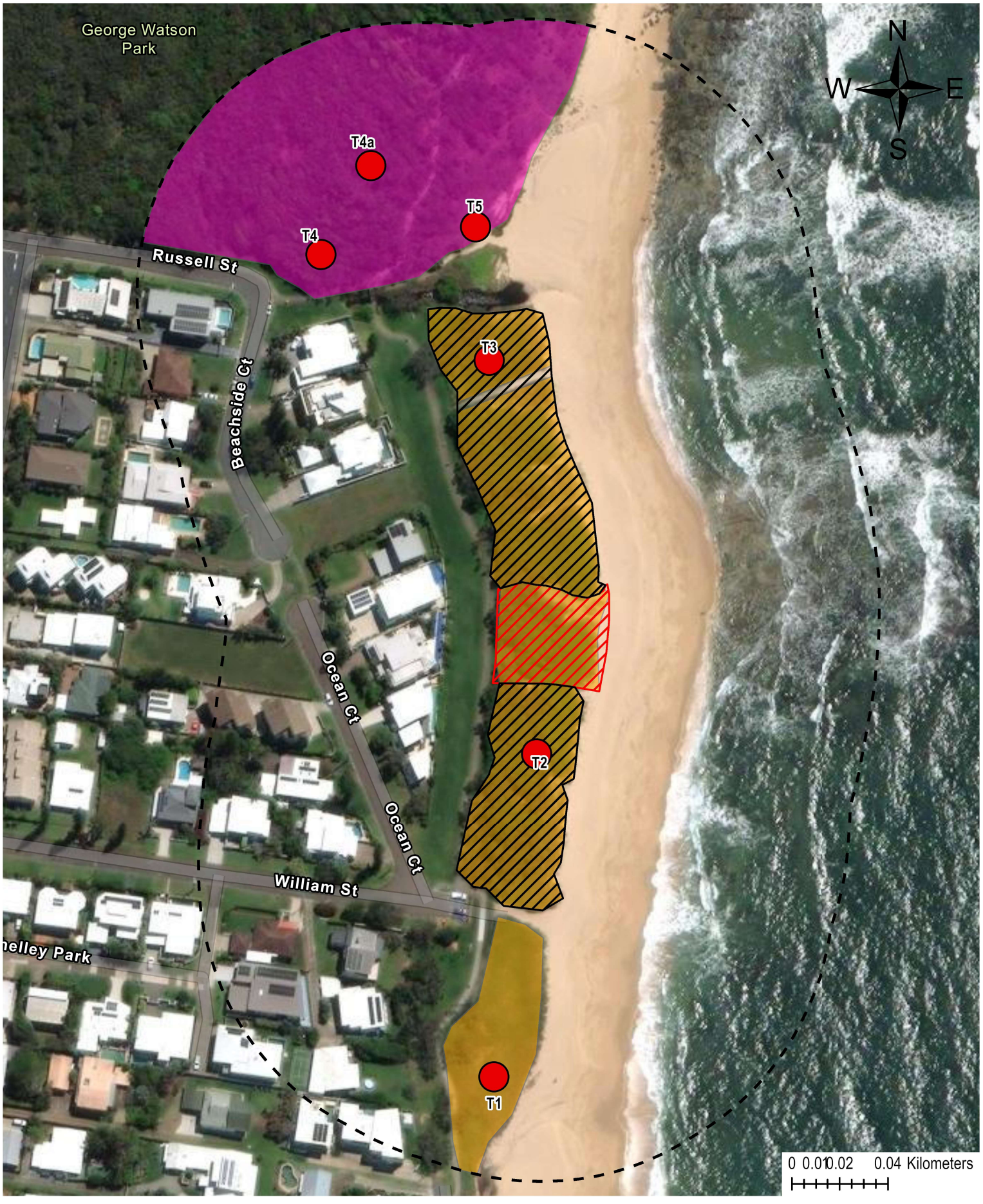
Department of Resources (2023). *Queensland Globe*. Stage of Queensland. <https://qldglobe.information.qld.gov.au>

Leiper, G, Glazebrook J, Cox D, Rathie K (2017) Mangroves to Mountains Second Edition. Logan River Branch Society for Growing Australian Plants Qld Region.

The Australasian Virtual herbarium [AVH] (2023). 'Occurrence Records'. Council of Heads of Australasian Herbaria (CHAH). <https://avh.chah.org.au/>

Appendix A.

Protected Plants Survey Plan



future-plus ENVIRONMENTAL

Title: Shelly Beach Flora Survey Map

Client: Sunshine Coast Council

Last Revision: SJB - 21/06/2023

Legend

Ground Truthed Regional Ecosystems

- 12.12.19x3
- 12.2.14

- Management Area
- Pilot Site
- Flora Survey Buffer Area
- Timed Meander

Appendix B.

Desktop Searches

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 01-Jun-2023

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	84
Listed Migratory Species:	80

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	115
Whales and Other Cetaceans:	13
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	1

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	3
Regional Forest Agreements:	None
Nationally Important Wetlands:	2
EPBC Act Referrals:	7
Key Ecological Features (Marine):	None
Biologically Important Areas:	5
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands) [Resource Information]

Ramsar Site Name	Proximity	Buffer Status
Moreton bay	Within Ramsar site	In feature area

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area	In feature area
Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions	Endangered	Community may occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
null			
Mordacia praecox Non-parasitic Lamprey, Precocious Lamprey [81530]	Endangered	Species or species habitat may occur within area	In feature area
BIRD			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area	In buffer area only
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In buffer area only
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat may occur within area	In feature area
Cyclopsitta diophthalma coxeni Coxen's Fig-Parrot [59714]	Critically Endangered	Species or species habitat may occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area	In feature area
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area	In feature area
Fregetta grallaria grallaria White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian) [64438]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In feature area
Pterodroma neglecta neglecta Kermadec Petrel (western) [64450]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat may occur within area	In feature area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In feature area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat likely to occur within area	In feature area
FISH			
Epinephelus daemelii Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat may occur within area	In feature area
Hippocampus whitei White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]	Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Nannoperca oxleyana Oxleyan Pygmy Perch [64468]	Endangered	Species or species habitat may occur within area	In feature area
Pseudomugil mellis Honey Blue Eye, Honey Blue-eye [26180]	Vulnerable	Species or species habitat may occur within area	In feature area
Thunnus maccoyii Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat likely to occur within area	In feature area
FROG			
Litoria olongburensis Wallum Sedge Frog [1821]	Vulnerable	Species or species habitat may occur within area	In feature area
Mixophyes fleayi Fleay's Frog [25960]	Endangered	Species or species habitat may occur within area	In feature area
INSECT			
Argynnis hyperbius inconstans Australian Fritillary [88056]	Critically Endangered	Species or species habitat may occur within area	In feature area
MAMMAL			
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area	In feature area
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area	In feature area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat likely to occur within area	In feature area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Eubalaena australis			
Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area	In feature area
Petauroides volans			
Greater Glider (southern and central) [254]	Endangered	Species or species habitat likely to occur within area	In feature area
Petaurus australis australis			
Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat may occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat likely to occur within area	In feature area
Potorous tridactylus tridactylus			
Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pteropus poliocephalus			
Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area	In feature area
PLANT			
Acacia attenuata			
[10690]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Acronychia littoralis			
Scented Acronychia [8582]	Endangered	Species or species habitat may occur within area	In feature area
Arthraxon hispidus			
Hairy-joint Grass [9338]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Bosistoa transversa			
Three-leaved Bosistoa, Yellow Satinheart [16091]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Cryptocarya foetida			
Stinking Cryptocarya, Stinking Laurel [11976]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat may occur within area	In feature area
Eucalyptus conglomerata Swamp Stringybark [3160]	Endangered	Species or species habitat may occur within area	In feature area
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat may occur within area	In feature area
Macadamia ternifolia Small-fruited Queensland Nut, Gympie Nut [7214]	Vulnerable	Species or species habitat may occur within area	In feature area
Macadamia tetraphylla Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut [6581]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat likely to occur within area	In feature area
Planchonella eerwah Shiny-leaved Condoo, Black Plum, Wild Apple [17340]	Endangered	Species or species habitat may occur within area	In feature area
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Rhodomyrtus psidioides Native Guava [19162]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Samadera bidwillii Quassia [29708]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Zieria exsul Banished Stink Bush [84829]	Critically Endangered	Species or species habitat likely to occur within area	In buffer area only
REPTILE			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area	In feature area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area	In feature area
Coeranoscincus reticulatus Three-toed Snake-tooth Skink [59628]	Vulnerable	Species or species habitat may occur within area	In feature area
Delma torquata Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area	In feature area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area	In feature area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Hemiaspis damelii Grey Snake [1179]	Endangered	Species or species habitat may occur within area	In buffer area only
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known to occur within area	In feature area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area	In feature area
SHARK			
Carcharias taurus (east coast population) Grey Nurse Shark (east coast population) [68751]	Critically Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Carcharodon carcharias			
White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pristis zijsron			
Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding may occur within area	In feature area
Rhincodon typus			
Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In feature area
Sphyrna lewini			
Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area	In feature area

Listed Migratory Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Anous stolidus			
Common Noddy [825]		Species or species habitat likely to occur within area	In feature area
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Ardenna carneipes			
Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat likely to occur within area	In feature area
Ardenna grisea			
Sooty Shearwater [82651]		Species or species habitat may occur within area	In feature area
Calonectris leucomelas			
Streaked Shearwater [1077]		Species or species habitat known to occur within area	In feature area
Diomedea antipodensis			
Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea exulans			
Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area	In feature area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area	In feature area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In feature area
Sternula albifrons Little Tern [82849]		Species or species habitat may occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In feature area
Migratory Marine Species			
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In feature area
Balaenoptera musculus Blue Whale [36]	Endangered	Species or species habitat may occur within area	In feature area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area	In feature area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In feature area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area	In feature area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area	In feature area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area	In feature area
Dugong dugon Dugong [28]		Species or species habitat known to occur within area	In feature area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Eubalaena australis as Balaena glacialis australis			
Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area	In feature area
Lamna nasus			
Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area	In feature area
Lepidochelys olivacea			
Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known to occur within area	In feature area
Megaptera novaeangliae			
Humpback Whale [38]		Species or species habitat known to occur within area	In feature area
Mobula alfredi as Manta alfredi			
Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat may occur within area	In feature area
Mobula birostris as Manta birostris			
Giant Manta Ray [90034]		Species or species habitat may occur within area	In feature area
Natator depressus			
Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area	In feature area
Orcaella heinsohni			
Australian Snubfin Dolphin [81322]		Species or species habitat may occur within area	In feature area
Orcinus orca			
Killer Whale, Orca [46]		Species or species habitat may occur within area	In feature area
Pristis zijsron			
Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding may occur within area	In feature area
Rhincodon typus			
Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In feature area
Sousa sahulensis as Sousa chinensis			
Australian Humpback Dolphin [87942]		Breeding known to occur within area	In feature area

Migratory Terrestrial Species

Scientific Name	Threatened Category	Presence Text	Buffer Status
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Arenaria interpres Ruddy Turnstone [872]		Roosting known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Roosting known to occur within area	In feature area
Calidris alba Sanderling [875]		Roosting known to occur within area	In buffer area only
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area	In feature area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area	In buffer area only
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area	In buffer area only
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area	In buffer area only
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In buffer area only
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Roosting known to occur within area	In buffer area only
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area	In feature area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area	In feature area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area	In feature area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area	In buffer area only
Limnodromus semipalmatus Asian Dowitcher [843]		Species or species habitat may occur within area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Limosa limosa Black-tailed Godwit [845]		Roosting known to occur within area	In buffer area only
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting known to occur within area	In feature area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area	In buffer area only
Pandion haliaetus Osprey [952]		Breeding known to occur within area	In feature area
Philomachus pugnax Ruff (Reeve) [850]		Roosting known to occur within area	In buffer area only
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area	In feature area
Pluvialis squatarola Grey Plover [865]		Roosting known to occur within area	In buffer area only
Tringa brevipes Grey-tailed Tattler [851]		Roosting known to occur within area	In buffer area only
Tringa glareola Wood Sandpiper [829]		Roosting known to occur within area	In buffer area only
Tringa incana Wandering Tattler [831]		Roosting known to occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area	In feature area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Xenus cinereus			
Terek Sandpiper [59300]		Roosting known to occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Anous stolidus			
Common Noddy [825]		Species or species habitat likely to occur within area	In feature area
Anseranas semipalmata			
Magpie Goose [978]		Species or species habitat may occur within area overfly marine area	In feature area
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Ardenna carneipes as Puffinus carneipes			
Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat likely to occur within area	In feature area
Ardenna grisea as Puffinus griseus			
Sooty Shearwater [82651]		Species or species habitat may occur within area	In feature area
Arenaria interpres			
Ruddy Turnstone [872]		Roosting known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Bubulcus ibis as Ardea ibis](#) Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]		Roosting known to occur within area	In feature area
[Calidris alba](#) Sanderling [875]		Roosting known to occur within area	In buffer area only
[Calidris canutus](#) Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat likely to occur within area overfly marine area	In feature area
[Calidris ruficollis](#) Red-necked Stint [860]		Roosting known to occur within area overfly marine area	In buffer area only
[Calidris tenuirostris](#) Great Knot [862]	Critically Endangered	Roosting known to occur within area overfly marine area	In buffer area only
[Calonectris leucomelas](#) Streaked Shearwater [1077]		Species or species habitat known to occur within area	In feature area
[Charadrius bicinctus](#) Double-banded Plover [895]		Roosting known to occur within area overfly marine area	In buffer area only
[Charadrius leschenaultii](#) Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In buffer area only
Charadrius ruficapillus Red-capped Plover [881]		Roosting known to occur within area overfly marine area	In buffer area only
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Roosting known to occur within area overfly marine area	In buffer area only
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea antipodensis gibsoni as Diomedea gibsoni Gibson's Albatross [82270]	Vulnerable	Species or species habitat may occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area	In feature area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area	In feature area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area overfly marine area	In feature area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area overfly marine area	In feature area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Roosting known to occur within area overfly marine area	In buffer area only
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area overfly marine area	In buffer area only
Limnodromus semipalmatus Asian Dowitcher [843]		Species or species habitat may occur within area overfly marine area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Limosa limosa Black-tailed Godwit [845]		Roosting known to occur within area overfly marine area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting known to occur within area overfly marine area	In feature area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area	In buffer area only
Pachyptila turtur Fairy Prion [1066]		Species or species habitat known to occur within area	In feature area
Pandion haliaetus Osprey [952]		Breeding known to occur within area	In feature area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In feature area
Philomachus pugnax Ruff (Reeve) [850]		Roosting known to occur within area overfly marine area	In buffer area only
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In feature area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pluvialis squatarola Grey Plover [865]		Roosting known to occur within area overfly marine area	In buffer area only
Pterodroma cervicalis White-necked Petrel [59642]		Species or species habitat may occur within area	In feature area
Recurvirostra novaehollandiae Red-necked Avocet [871]		Roosting known to occur within area overfly marine area	In buffer area only
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Sternula albifrons as Sterna albifrons Little Tern [82849]		Species or species habitat may occur within area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat known to occur within area overfly marine area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Thalassarche salvini](#) Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area	In feature area
[Thalassarche steadi](#) White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In feature area
[Tringa brevipes as Heteroscelus brevipes](#) Grey-tailed Tattler [851]		Roosting known to occur within area	In buffer area only
[Tringa glareola](#) Wood Sandpiper [829]		Roosting known to occur within area overfly marine area	In buffer area only
[Tringa incana as Heteroscelus incanus](#) Wandering Tattler [831]		Roosting known to occur within area	In feature area
[Tringa nebularia](#) Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area overfly marine area	In feature area
[Tringa stagnatilis](#) Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area overfly marine area	In buffer area only
[Xenus cinereus](#) Terek Sandpiper [59300]		Roosting known to occur within area overfly marine area	In buffer area only
Fish			
[Acentronura tentaculata](#) Shortpouch Pygmy Pipehorse [66187]		Species or species habitat may occur within area	In feature area
[Campichthys tryoni](#) Tryon's Pipefish [66193]		Species or species habitat may occur within area	In feature area
[Corythoichthys amplexus](#) Fijian Banded Pipefish, Brown-banded Pipefish [66199]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Corythoichthys ocellatus Orange-spotted Pipefish, Ocellated Pipefish [66203]		Species or species habitat may occur within area	In feature area
Festucalex cinctus Girdled Pipefish [66214]		Species or species habitat may occur within area	In feature area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area	In feature area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area	In feature area
Hippichthys cyanospilos Blue-speckled Pipefish, Blue-spotted Pipefish [66228]		Species or species habitat may occur within area	In feature area
Hippichthys heptagonus Madura Pipefish, Reticulated Freshwater Pipefish [66229]		Species or species habitat may occur within area	In feature area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area	In feature area
Hippocampus kelloggi Kellogg's Seahorse, Great Seahorse [66723]		Species or species habitat may occur within area	In feature area
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area	In feature area
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area	In feature area
Hippocampus trimaculatus Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hippocampus whitei White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]	Endangered	Species or species habitat likely to occur within area	In feature area
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area	In feature area
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area	In feature area
Micrognathus andersonii Anderson's Pipefish, Shortnose Pipefish [66253]		Species or species habitat may occur within area	In feature area
Micrognathus brevirostris thorntail Pipefish, Thorn-tailed Pipefish [66254]		Species or species habitat may occur within area	In feature area
Microphis manadensis Manado Pipefish, Manado River Pipefish [66258]		Species or species habitat may occur within area	In feature area
Solegnathus dunckeri Duncker's Pipehorse [66271]		Species or species habitat may occur within area	In feature area
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area	In feature area
Solegnathus spinosissimus Spiny Pipehorse, Australian Spiny Pipehorse [66275]		Species or species habitat may occur within area	In feature area
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area	In feature area
Solenostomus paradoxus Ornate Ghostpipefish, Harlequin Ghost Pipefish, Ornate Ghost Pipefish [66184]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Stigmatopora nigra](#) Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area	In feature area
[Syngnathoides biaculeatus](#) Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area	In feature area
[Trachyrhamphus bicoarctatus](#) Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area	In feature area
[Urocampus carinirostris](#) Hairy Pipefish [66282]		Species or species habitat may occur within area	In feature area
[Vanacampus margaritifer](#) Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area	In feature area
Mammal			
[Dugong dugon](#) Dugong [28]		Species or species habitat known to occur within area	In feature area
Reptile			
[Acalyptophis peronii](#) Horned Seasnake [1114]		Species or species habitat may occur within area	In feature area
[Aipysurus laevis](#) Olive Seasnake [1120]		Species or species habitat may occur within area	In feature area
[Astrotia stokesii](#) Stokes' Seasnake [1122]		Species or species habitat may occur within area	In feature area
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area	In feature area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Breeding known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area	In feature area
[Disteira kingii](#) Spectacled Seasnake [1123]		Species or species habitat may occur within area	In feature area
[Disteira major](#) Olive-headed Seasnake [1124]		Species or species habitat may occur within area	In feature area
[Emydocephalus annulatus](#) Turtle-headed Seasnake [1125]		Species or species habitat may occur within area	In feature area
[Eretmochelys imbricata](#) Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
[Hydrophis elegans](#) Elegant Seasnake [1104]		Species or species habitat may occur within area	In feature area
[Laticauda laticaudata](#) a sea krait [1093]		Species or species habitat may occur within area	In feature area
[Lepidochelys olivacea](#) Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known to occur within area	In feature area
[Natator depressus](#) Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area	In feature area
[Pelamis platurus](#) Yellow-bellied Seasnake [1091]		Species or species habitat may occur within area	In feature area

Whales and Other Cetaceans			[Resource Information]
Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			

Current Scientific Name	Status	Type of Presence	Buffer Status
[Balaenoptera acutorostrata](#) Minke Whale [33]		Species or species habitat may occur within area	In feature area
[Balaenoptera edeni](#) Bryde's Whale [35]		Species or species habitat may occur within area	In feature area
[Balaenoptera musculus](#) Blue Whale [36]	Endangered	Species or species habitat may occur within area	In feature area
[Delphinus delphis](#) Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In feature area
[Eubalaena australis](#) Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area	In feature area
[Grampus griseus](#) Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area	In feature area
[Megaptera novaeangliae](#) Humpback Whale [38]		Species or species habitat known to occur within area	In feature area
[Orcaella heinsohni](#) Australian Snubfin Dolphin [81322]		Species or species habitat may occur within area	In feature area
[Orcinus orca](#) Killer Whale, Orca [46]		Species or species habitat may occur within area	In feature area
[Sousa sahulensis](#) Australian Humpback Dolphin [87942]		Breeding known to occur within area	In feature area
[Stenella attenuata](#) Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area	In feature area

Current Scientific Name	Status	Type of Presence	Buffer Status
Tursiops aduncus			
Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In feature area
Tursiops truncatus s. str.			
Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In feature area

Habitat Critical to the Survival of Marine Turtles			
Scientific Name	Behaviour	Presence	Buffer Status
Nov-Feb			
Caretta caretta			
Loggerhead Turtle [1763]	Nesting	Known to occur	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Bribie Island	National Park	QLD	In buffer area only
Moreton Bay	Marine Park	QLD	In buffer area only
Pumicestone Channel	Fish Habitat Area (A)	QLD	In buffer area only

Nationally Important Wetlands		[Resource Information]
Wetland Name	State	Buffer Status
Moreton Bay	QLD	In buffer area only
Pumicestone Passage	QLD	In buffer area only

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Caloundra Road Duplication	2005/2351	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Japan-Guam-Australia Sunshine Coast Branch Marine Cable Route Survey (JGA) QLD	2018/8373	Not Controlled Action	Completed	In feature area
MMTC between Caloundra Rd & Creekside Blvd	2004/1918	Not Controlled Action	Completed	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Sunshine Motorway duplication between Kawana Way and Sippy Downs Drive	2004/1908	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
Bulcock Beach and Esplanade Redevelopment	2008/4186	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Japan-Guam-Australia (JGA) Fibre Optic Cable project	2016/7795	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Biologically Important Areas

Scientific Name	Behaviour	Presence	Buffer Status
Dolphins			
Sousa chinensis Indo-Pacific Humpback Dolphin [50]	Breeding	Known to occur	In feature area
Tursiops aduncus Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Breeding	Known to occur	In feature area
Marine Turtles			
Caretta caretta Loggerhead Turtle [1763]	Nesting	Known to occur	In feature area
Sharks			
Carcharias taurus Grey Nurse Shark [64469]	Foraging	Known to occur	In feature area
Whales			
Megaptera novaeangliae Humpback Whale [38]	Migration (north and south)	Known to occur	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

Department of Climate Change, Energy, the Environment and Water
GPO Box 3090
Canberra ACT 2601 Australia
+61 2 6274 1111

Queensland Government

Department of Environment and Science

Environmental Reports

Matters of State Environmental Significance

For the selected area of interest
Lot: 9 Plan: SP100298

Environmental Reports - General Information

The Environmental Reports portal provides for the assessment of selected matters of interest relevant to a user specified location, or area of interest (AOI). All area and derivative figures are relevant to the extent of matters of interest contained within the AOI unless otherwise stated. Please note, if a user selects an AOI via the "central coordinates" option, the resulting assessment area encompasses an area extending for a 2km radius from the point of interest.

All area and area derived figures included in this report have been calculated via reprojecting relevant spatial features to Albers equal-area conic projection (central meridian = 146, datum Geocentric Datum of Australia 1994). As a result, area figures may differ slightly if calculated for the same features using a different co-ordinate system.

Figures in tables may be affected by rounding.

The matters of interest reported on in this document are based upon available state mapped datasets. Where the report indicates that a matter of interest is not present within the AOI (e.g. where area related calculations are equal to zero, or no values are listed), this may be due either to the fact that state mapping has not been undertaken for the AOI, that state mapping is incomplete for the AOI, or that no values have been identified within the site.

The information presented in this report should be considered as a guide only and field survey may be required to validate values on the ground.

Please direct queries about these reports to: Planning.Support@des.qld.gov.au

Disclaimer

Whilst every care is taken to ensure the accuracy of the information provided in this report, the Queensland Government makes no representations or warranties about its accuracy, reliability, completeness, or suitability, for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which the user may incur as a consequence of the information being inaccurate or incomplete in any way and for any reason.

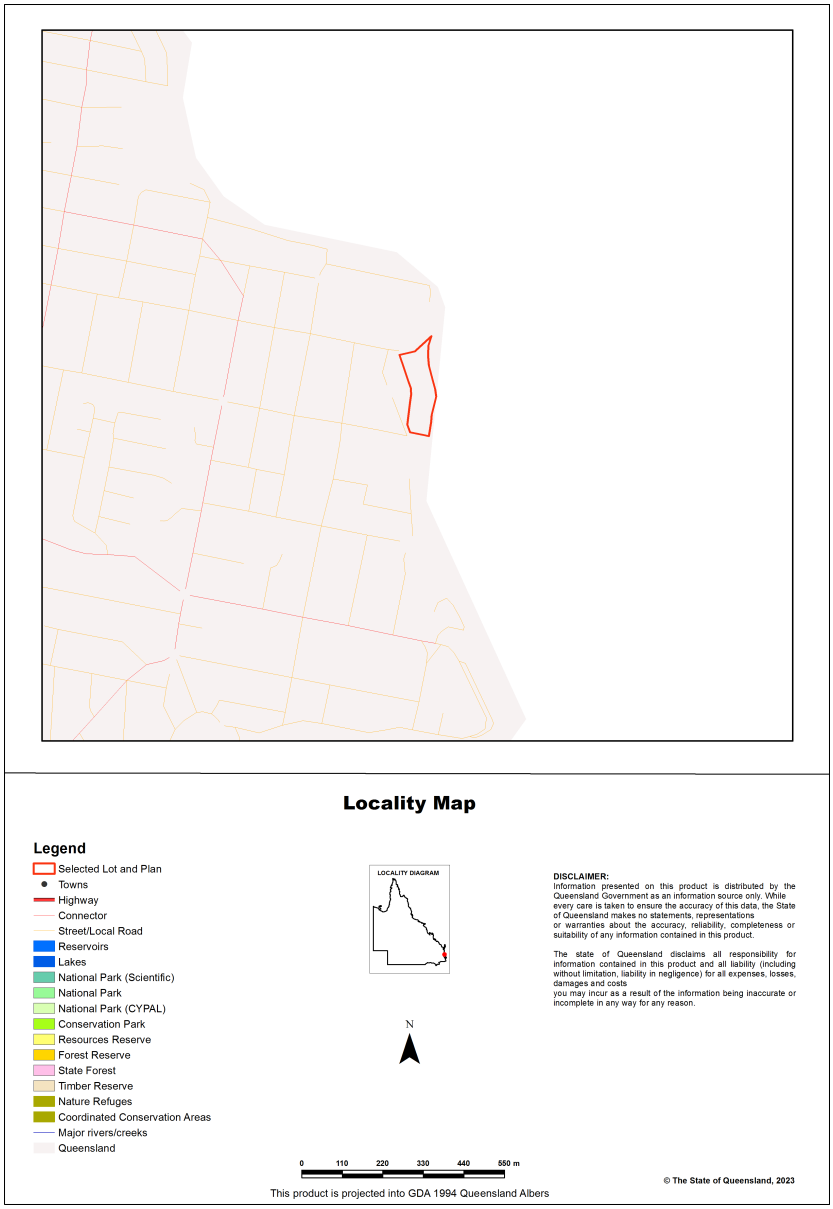
Table of Contents

Assessment Area Details

The following table provides an overview of the area of interest (AOI) with respect to selected topographic and environmental values.

Table 1: Summary table, details for AOI Lot: 9 Plan: SP100298

Size (ha)	1.54
Local Government(s)	Sunshine Coast Regional
Bioregion(s)	Southeast Queensland
Subregion(s)	Sunshine Coast - Gold Coast Lowlands
Catchment(s)	Maroochy



Matters of State Environmental Significance (MSES)

MSES Categories

Queensland's State Planning Policy (SPP) includes a biodiversity State interest that states:

'The sustainable, long-term conservation of biodiversity is supported. Significant impacts on matters of national or state environmental significance are avoided, or where this cannot be reasonably achieved; impacts are minimised and residual impacts offset.'

The MSES mapping product is a guide to assist planning and development assessment decision-making. Its primary purpose is to support implementation of the SPP biodiversity policy. While it supports the SPP, the mapping does not replace the regulatory mapping or environmental values specifically called up under other laws or regulations. Similarly, the SPP biodiversity policy does not override or replace specific requirements of other Acts or regulations.

The SPP defines matters of state environmental significance as:

- Protected areas (including all classes of protected area except coordinated conservation areas) under the *Nature Conservation Act 1992* ;

- Marine parks and land within a 'marine national park', 'conservation park', 'scientific research', 'preservation' or 'buffer' zone under the *Marine Parks Act 2004* ;

- Areas within declared fish habitat areas that are management A areas or management B areas under the Fisheries Regulation 2008;

- Threatened wildlife under the *Nature Conservation Act 1992* and special least concern animals under the Nature Conservation (Wildlife) Regulation 2006;

- Regulated vegetation under the *Vegetation Management Act 1999* that is:

    • Category B areas on the regulated vegetation management map, that are 'endangered' or 'of concern' regional ecosystems;

    • Category C areas on the regulated vegetation management map that are 'endangered' or 'of concern' regional ecosystems;

    • Category R areas on the regulated vegetation management map;

    • Regional ecosystems that intersect with watercourses identified on the vegetation management watercourse and drainage feature map;

    • Regional ecosystems that intersect with wetlands identified on the vegetation management wetlands map;

- Strategic Environmental Areas under the *Regional Planning Interests Act 2014* ;

- Wetlands in a wetland protection area of wetlands of high ecological significance shown on the Map of Queensland Wetland Environmental Values under the Environment Protection Regulation 2019;

- Wetlands and watercourses in high ecological value waters defined in the Environmental Protection (Water) Policy 2009, schedule 2;

- Legally secured offset areas.

MSES Values Present

The MSES values that are present in the area of interest are summarised in the table below:

Table 2: Summary of MSES present within the AOI

1a Protected Areas- estates	0.0 ha	0.0 %
1b Protected Areas- nature refuges	0.0 ha	0.0 %
1c Protected Areas- special wildlife reserves	0.0 ha	0.0 %
2 State Marine Parks- highly protected zones	0.0 ha	0.0 %
3 Fish habitat areas (A and B areas)	0.0 ha	0.0 %
4 Strategic Environmental Areas (SEA)	0.0 ha	0.0 %
5 High Ecological Significance wetlands on the map of Referable Wetlands	0.0 ha	0.0 %
6a High Ecological Value (HEV) wetlands	0.01 ha	0.91%
6b High Ecological Value (HEV) waterways	0.0 km	Not applicable
7a Threatened (endangered or vulnerable) wildlife	0.79 ha	51.3%
7b Special least concern animals	0.79 ha	51.3%
7c i Koala habitat area - core (SEQ)	0.0 ha	0.0 %
7c ii Koala habitat area - locally refined (SEQ)	0.0 ha	0.0 %
7d Sea turtle nesting areas	0.0 km	Not applicable
8a Regulated Vegetation - Endangered/Of concern in Category B (remnant)	0.0 ha	0.0 %
8b Regulated Vegetation - Endangered/Of concern in Category C (regrowth)	0.79 ha	51.3%
8c Regulated Vegetation - Category R (GBR riverine regrowth)	0.0 ha	0.0 %
8d Regulated Vegetation - Essential habitat	0.79 ha	51.3%
8e Regulated Vegetation - intersecting a watercourse	0.0 km	Not applicable
8f Regulated Vegetation - within 100m of a Vegetation Management Wetland	0.31 ha	20.1%
9a Legally secured offset areas- offset register areas	0.0 ha	0.0 %
9b Legally secured offset areas- vegetation offsets through a Property Map of Assessable Vegetation	0.0 ha	0.0 %

Additional Information with Respect to MSES Values Present

MSES - State Conservation Areas

1a. Protected Areas - estates

(no results)

1b. Protected Areas - nature refuges

(no results)

1c. Protected Areas - special wildlife reserves

(no results)

2. State Marine Parks - highly protected zones

(no results)

3. Fish habitat areas (A and B areas)

(no results)

Refer to **Map 1 - MSES - State Conservation Areas** for an overview of the relevant MSES.

MSES - Wetlands and Waterways

4. Strategic Environmental Areas (SEA)

(no results)

5. High Ecological Significance wetlands on the Map of Queensland Wetland Environmental Values

(no results)

6a. Wetlands in High Ecological Value (HEV) waters

Natural wetlands that occur in HEV (maintain) freshwater and estuarine areas under the Environmental Protection (water) Policy are present.

6b. Waterways in High Ecological Value (HEV) waters

(no results)

Refer to **Map 2 - MSES - Wetlands and Waterways** for an overview of the relevant MSES.

MSES - Species

7a. Threatened (endangered or vulnerable) wildlife

Values are present

7b. Special least concern animals

Values are present

7c i. Koala habitat area - core (SEQ)

Not applicable

7c ii. Koala habitat area - locally refined (SEQ)

Not applicable

7d. Wildlife habitat (sea turtle nesting areas)

Not applicable

Threatened (endangered or vulnerable) wildlife habitat suitability models

Species	Common name	NCA status	Presence
Boronia keysii		V	None
Calyptorhynchus lathami	Glossy black cockatoo	V	None
Casuarius casuarius johnsonii	Sthn population cassowary	E	None
Crinia tinnula	Wallum froglet	V	None
Denisonia maculata	Ornamental snake	V	None
Litoria freycineti	Wallum rocketfrog	V	None
Litoria olongburensis	Wallum sedgefrog	V	None
Macadamia integrifolia		V	None
Macadamia ternifolia		V	None
Macadamia tetraphylla		V	None
Melaleuca irbyana		E	None
Petaurus gracilis	Mahogany Glider	E	None
Petrogale persephone	Proserpine rock-wallaby	E	None
Pezoporus wallicus wallicus	Eastern ground parrot	V	None
Phascolarctos cinereus	Koala - outside SEQ*	E	None
Taudactylus pleione	Kroombit tinkerfrog	E	None
Xeromys myoides	Water Mouse	V	None

**For koala model, this includes areas outside SEQ. Check 7c SEQ koala habitat for presence/absence.*

Threatened (endangered or vulnerable) wildlife species records

Scientific name	Common name	NCA status	EPBC status	Migratory status
Limosa lapponica baueri	Western Alaskan bar-tailed godwit	V	V	Y
Numenius madagascariensis	eastern curlew	E	CE	Y
Caretta caretta	loggerhead turtle	E	E	Y

Scientific name	Common name	NCA status	EPBC status	Migratory status
Rostratula australis	Australian painted-snipe	E	E	
Charadrius mongolus	lesser sand plover	E	E	Y

Special least concern animal species records

Scientific name	Common name	Migratory status
Pandion cristatus	eastern osprey	Y
Tringa incana	wandering tattler	Y
Pluvialis fulva	Pacific golden plover	Y
Sterna hirundo	common tern	Y
Arenaria interpres	ruddy turnstone	Y
Thalasseus bergii	crested tern	Y
Charadrius bicinctus	double-banded plover	Y
Numenius phaeopus	whimbrel	Y

Shorebird habitat (critically endangered/endangered/vulnerable)

Not applicable

Shorebird habitat (special least concern)

Not applicable

**Nature Conservation Act 1992 (NCA) Status- Endangered (E), Vulnerable (V) or Special Least Concern Animal (SL). Environment Protection and Biodiversity Conservation Act 1999 (EPBC) status: Critically Endangered (CE) Endangered (E), Vulnerable (V)*

Migratory status (M) - China and Australia Migratory Bird Agreement (C), Japan and Australia Migratory Bird Agreement (J), Republic of Korea and Australia Migratory Bird Agreement (R), Bonn Migratory Convention (B), Eastern Flyway (E)

To request a species list for an area, or search for a species profile, access Wildlife Online at:
https://www.qld.gov.au/environment/plants-animals/species-list/

Refer to **Map 3a - MSES - Species - Threatened (endangered or vulnerable) wildlife and special least concern animals, Map 3b - MSES - Species - Koala habitat area (SEQ)** and **Map 3c - MSES - Wildlife habitat (sea turtle nesting areas)** for an overview of the relevant MSES.

MSES - Regulated Vegetation

For further information relating to regional ecosystems in general, go to:
https://www.qld.gov.au/environment/plants-animals/plants/ecosystems/
For a more detailed description of a particular regional ecosystem, access the regional ecosystem search page at:
https://environment.ehp.qld.gov.au/regional-ecosystems/

8a. Regulated Vegetation - Endangered/Of concern in Category B (remnant)

Not applicable

8b. Regulated Vegetation - Endangered/Of concern in Category C (regrowth)

Regional ecosystem	Vegetation management polygon	Vegetation management status
12.9-10.4/12.9-10.22	O-subdom	hvr_oc

8c. Regulated Vegetation - Category R (GBR riverine regrowth)

Not applicable

8d. Regulated Vegetation - Essential habitat

Values are present

8e. Regulated Vegetation - intersecting a watercourse**

(no results)

8f. Regulated Vegetation - within 100m of a Vegetation Management wetland

Regulated vegetation map category	Map number
C	9544

Refer to **Map 4 - MSES - Regulated Vegetation** for an overview of the relevant MSES.

MSES - Offsets

9a. Legally secured offset areas - offset register areas

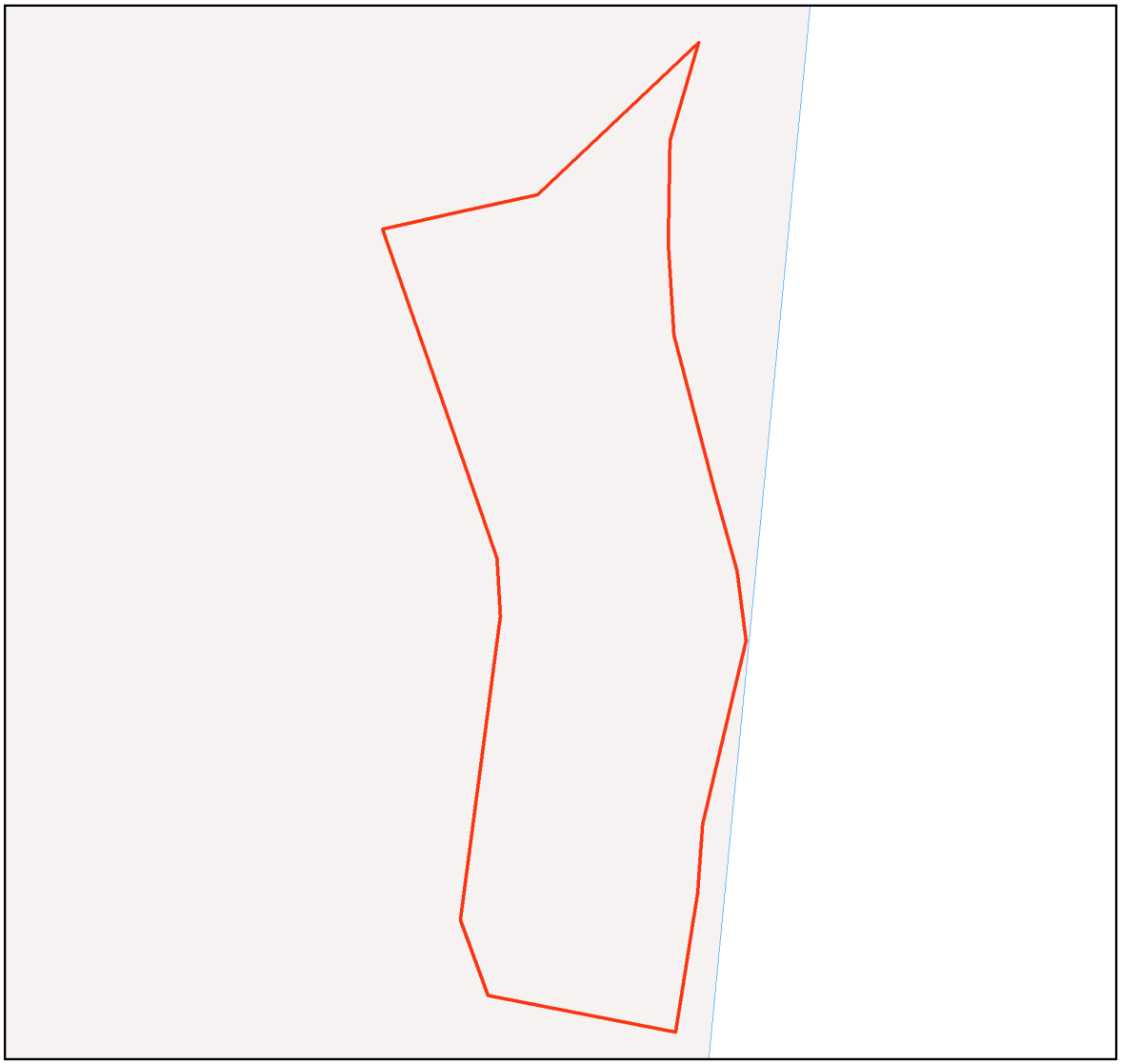
(no results)

9b. Legally secured offset areas - vegetation offsets through a Property Map of Assessable Vegetation

(no results)

Refer to **Map 5 - MSES - Offset Areas** for an overview of the relevant MSES.

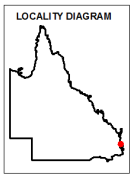
Map 1 - MSES - State Conservation Areas



MSES - State Conservation Areas

Area of Interest

- Selected Lot and Plan
- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Protected area (estates, nature refuges, special wildlife reserves)
- Declared fish habitat area (A and B areas)
- Marine park (highly protected)



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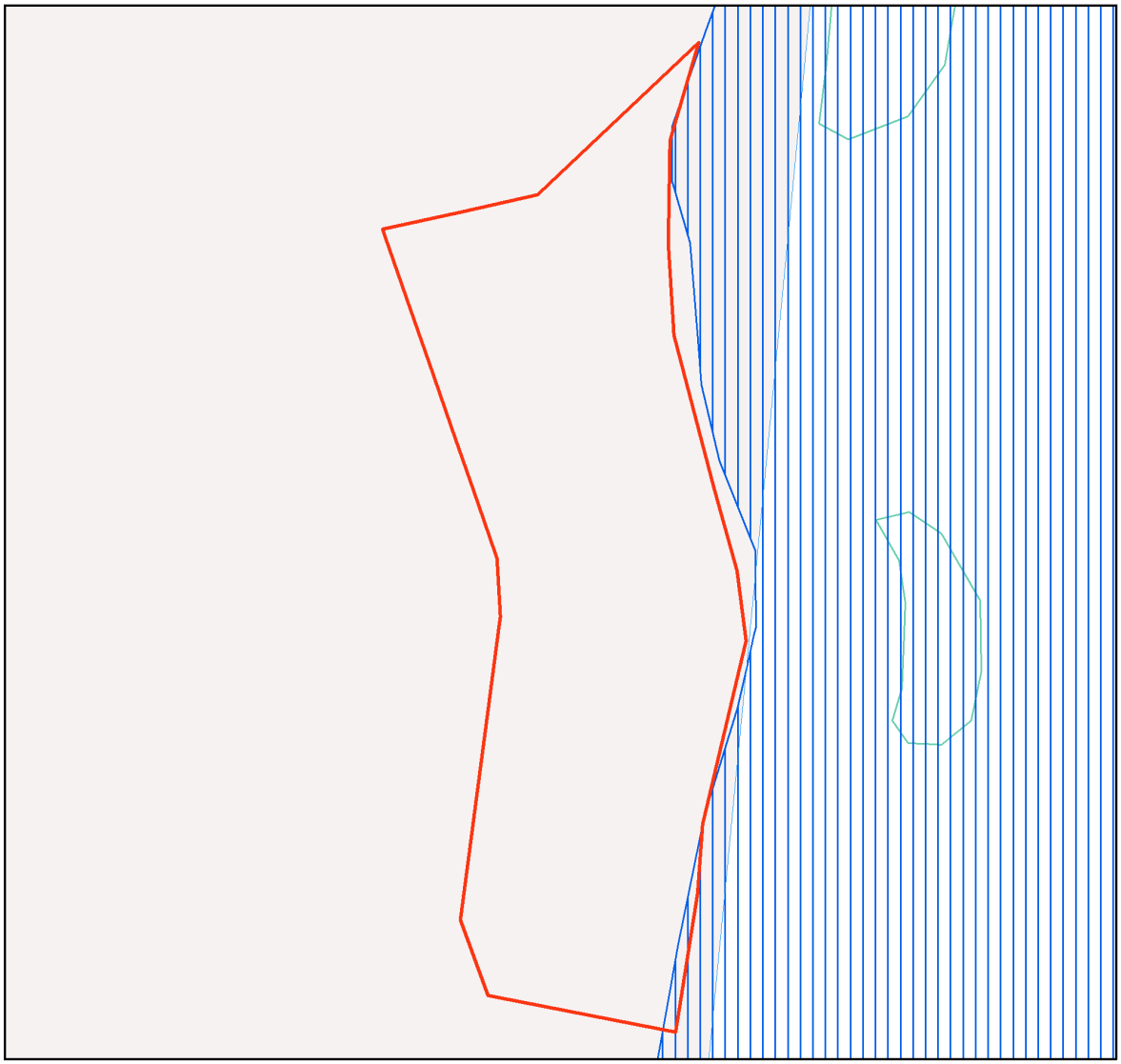
This product is projected into GDA 1994 Queensland Albers

Map 2 - MSES - Wetlands and Waterways

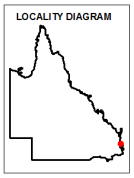


MSES - Wetlands and Waterways

Area of Interest

- Selected Lot and Plan
- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Declared high ecological value waters (watercourse)
- Strategic environmental area (designated precinct)
- Declared high ecological value waters (wetland)
- High ecological significance wetlands

LOCALITY DIAGRAM



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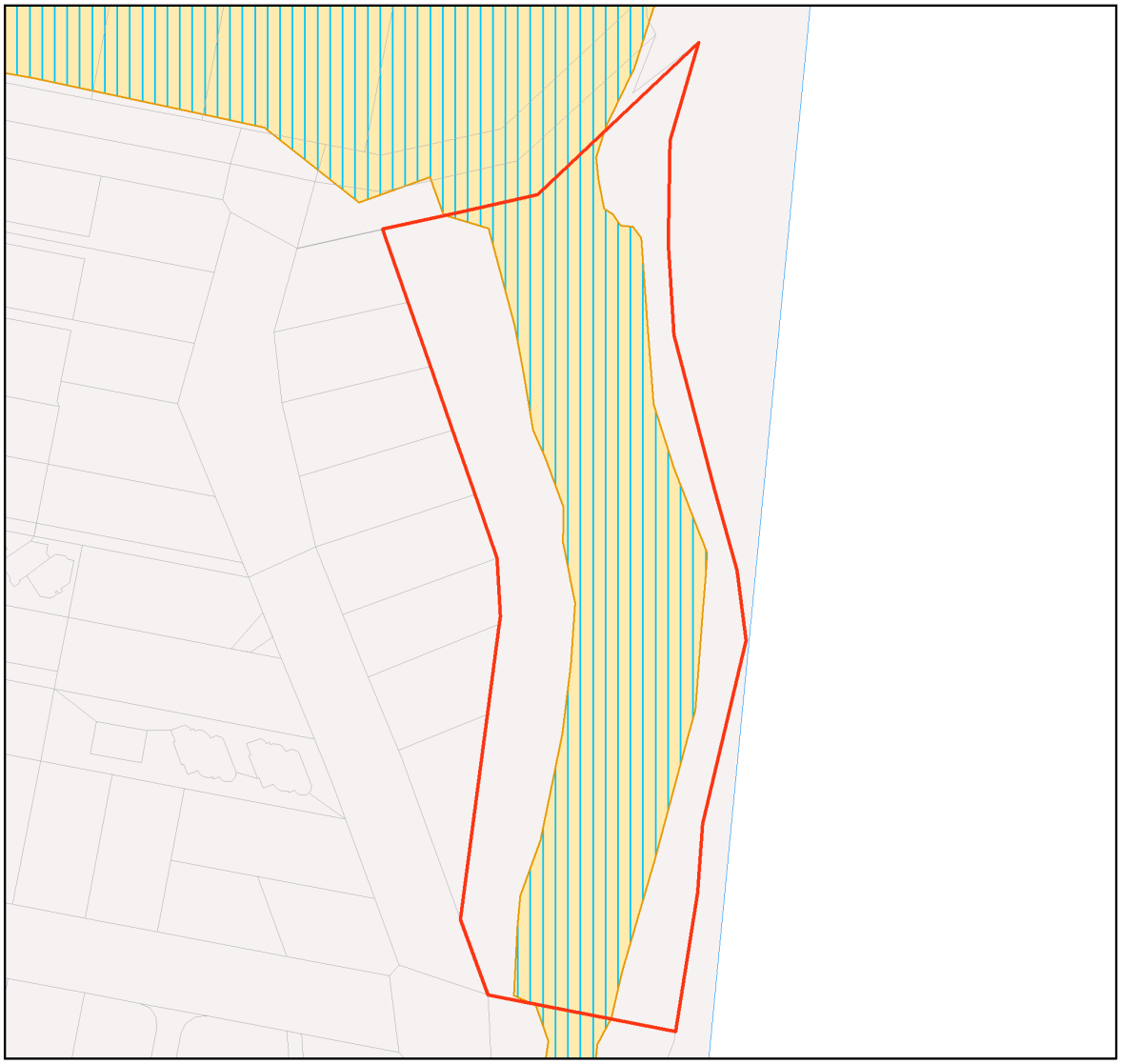
Map 3a - MSES - Species - Threatened (endangered or vulnerable) wildlife and special least concern animals

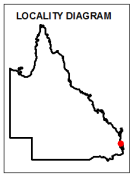


MSES - Species
Threatened (endangered or vulnerable) wildlife and special least concern animals

Area of Interest

- Selected Lot and Plan
- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Wildlife habitat (special least concern)
- Wildlife habitat (endangered or vulnerable)

LOCALITY DIAGRAM



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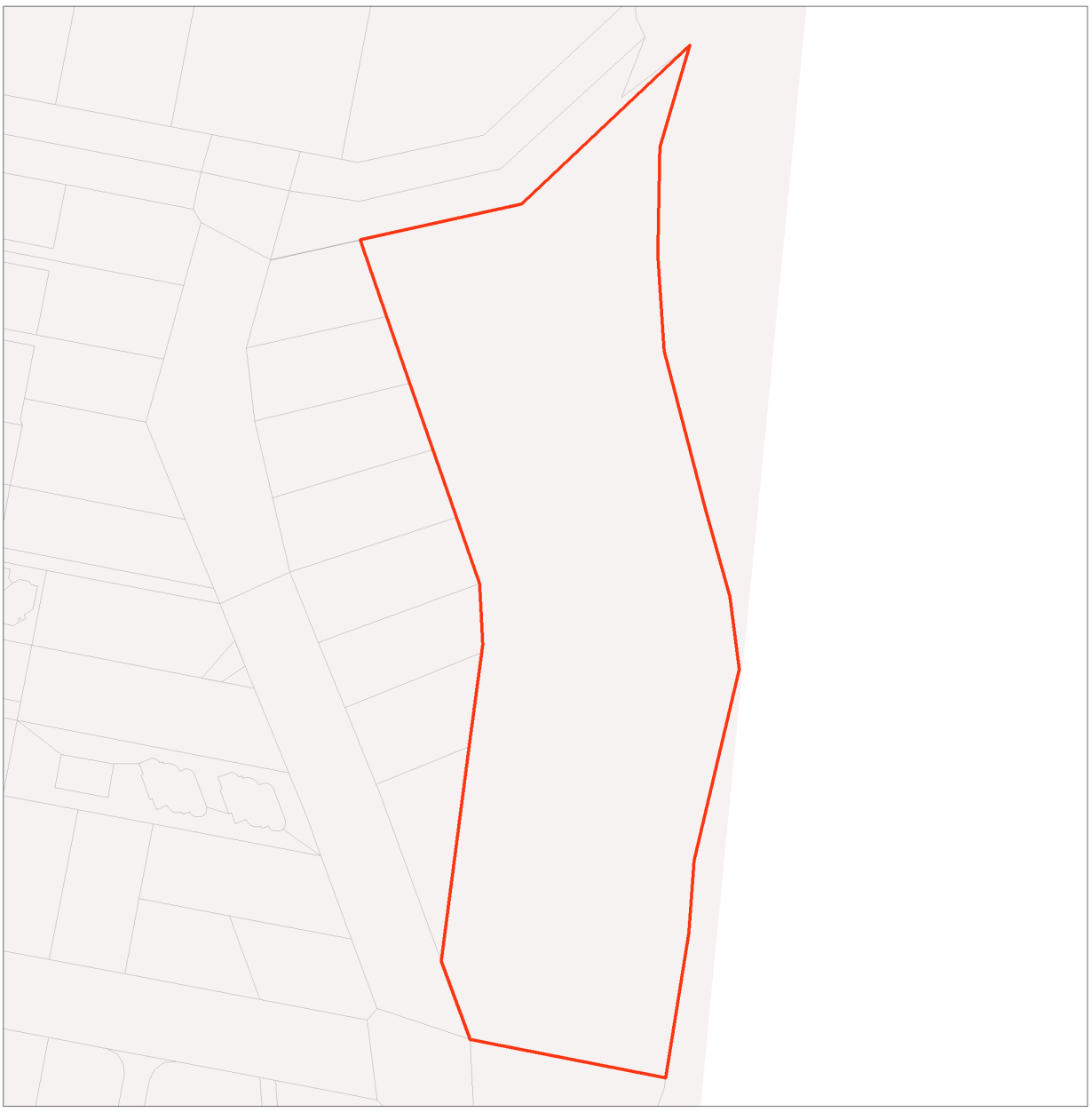
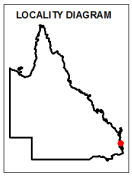
Map 3b - MSES - Species - Koala habitat area (SEQ)



MSES - Species
Koala habitat area (SEQ)

Area of Interest
- Selected Lot and Plan
- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Koala habitat area (core)
- Koala habitat area (locally refined)

LOCALITY DIAGRAM



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The represented layers for SEQ 'koala habitat area-core' and 'koala habitat area- locally refined' in MSES are sourced directly from the regulatory mapping under the Nature Conservation (Koala) Conservation Plan 2017. Whilst every effort is made to ensure the information remains current, there may be delays between updating versions. Please refer to the original mapping for the most recent version. See https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping

The koala habitat mapping within South East Queensland uses regional ecosystem linework compiled at a scale varying from 1:25,000 to 1:100,000. Linework should be used as a guide only. The positional accuracy of regional ecosystem data mapped at a scale of 1:100,000 is +/- 100 metres.

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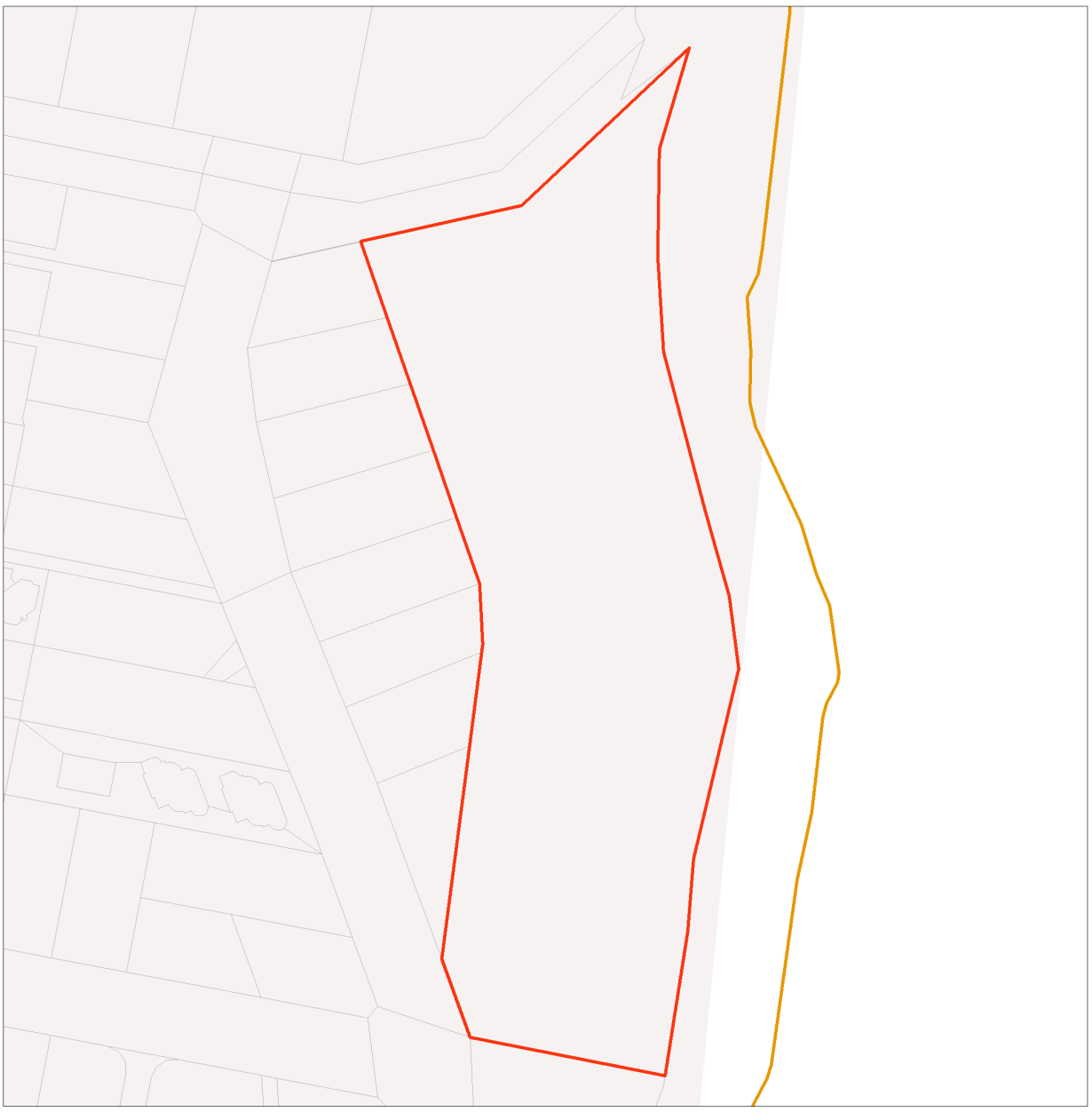
This product is projected into GDA 1994 Queensland Albers

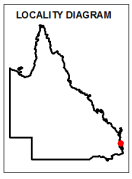
Map 3c - MSES - Wildlife habitat (sea turtle nesting areas)



MSES - Wildlife habitat (sea turtle nesting areas)

Area of Interest
- Selected Lot and Plan
- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Wildlife habitat (sea turtle nesting areas)

LOCALITY DIAGRAM



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MSES mapping of sea turtle nesting areas identifies beaches where the recorded number of turtle nests are over 1% of the turtle species or genetic stock. The linework is also deliberately extended along nearby rocky coastlines and headlands to recognise that significant numbers of nesting adults and hatchlings can become disoriented by light pollution from development on rocky coastlines and headlands while navigating offshore from nesting beaches.

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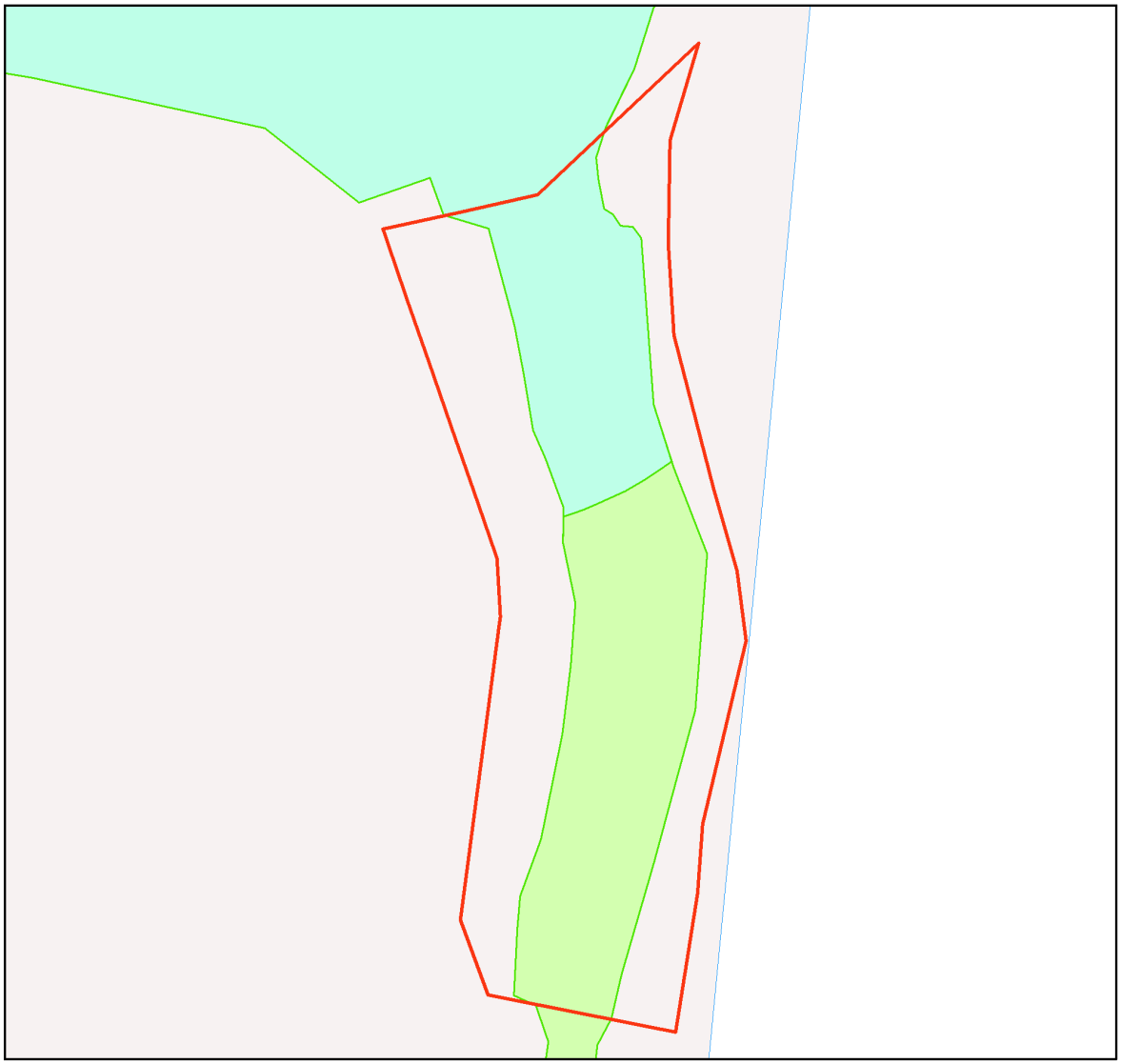
This product is projected into GDA 1994 Queensland Albers

Map 4 - MSES - Regulated Vegetation

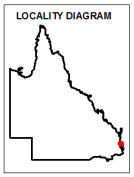


MSES - Regulated Vegetation

Area of Interest

- Selected Lot and Plan
- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Regulated vegetation (intersecting a watercourse)
- Regulated vegetation (100m from wetland)
- Regulated vegetation (category B - endangered or of concern)
- Regulated vegetation (category C - endangered or of concern)
- Regulated vegetation (category R - GBR riverine)
- Regulated vegetation (essential habitat)

LOCALITY DIAGRAM



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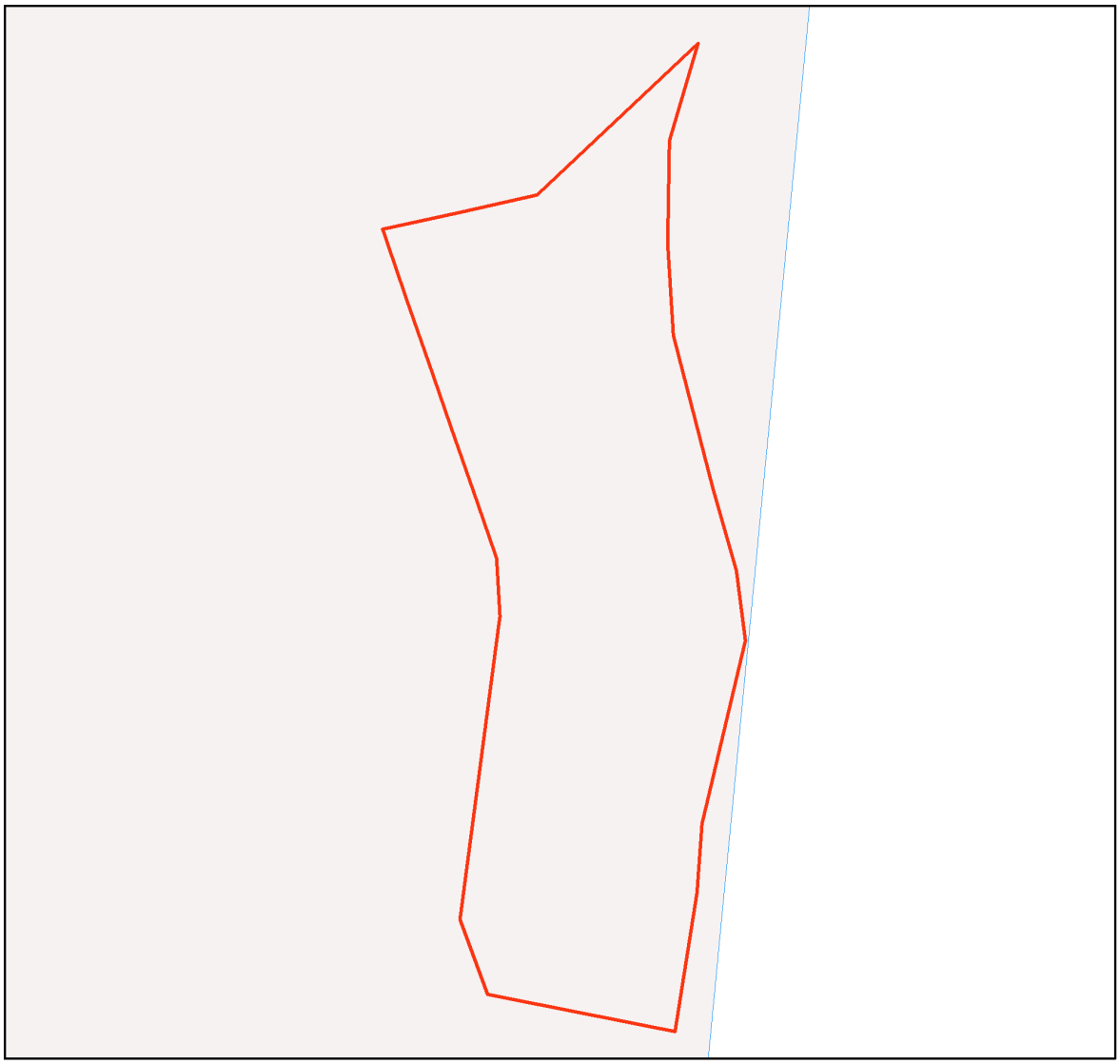
This product is projected into GDA 1994 Queensland Albers

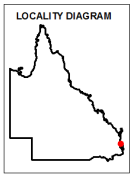
Map 5 - MSES - Offset Areas



MSES - Offsets

Area of Interest

- Selected Lot and Plan
- Towns
- Freeways/Highways
- Secondary roads
- Major rivers/creeks
- Legally secured offset area (offset register)
- Legally secured offset area (vegetation offsets)



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This product is projected into GDA 1994 Queensland Albers

Appendices

Appendix 1 - Matters of State Environmental Significance (MSES) methodology

MSES mapping is a regional-scale representation of the definition for MSES under the State Planning Policy (SPP). The compiled MSES mapping product is a guide to assist planning and development assessment decision-making. Its primary purpose is to support implementation of the SPP biodiversity policy. While it supports the SPP, the mapping does not replace the regulatory mapping or environmental values specifically called up under other laws or regulations. Similarly, the SPP biodiversity policy does not override or replace specific requirements of other Acts or regulations.

The Queensland Government's "Method for mapping - matters of state environmental significance for use in land use planning and development assessment" can be downloaded from:

http://www.ehp.qld.gov.au/land/natural-resource/method-mapping-mses.html .

Appendix 2 - Source Data

The datasets listed below are available on request from:

http://qldspatial.information.qld.gov.au/catalogue/custom/index.page

- Matters of State environmental significance

Note: MSES mapping is not based on new or unique data. The primary mapping product draws data from a number of underlying environment databases and geo-referenced information sources. MSES mapping is a versioned product that is updated generally on a twice-yearly basis to incorporate the changes to underlying data sources. Several components of MSES mapping made for the current version may differ from the current underlying data sources. To ensure accuracy, or proper representation of MSES values, it is strongly recommended that users refer to the underlying data sources and review the current definition of MSES in the State Planning Policy, before applying the MSES mapping.

Individual MSES layers can be attributed to the following source data available at QSpatial:

MSES layers	**current QSpatial data (http://qspatial.information.qld.gov.au)**
Protected Areas-Estates, Nature Refuges, Special Wildlife Reserves	- Protected areas of Queensland - Nature Refuges - Queensland - Special Wildlife Reserves- Queensland
Marine Park-Highly Protected Zones	Moreton Bay marine park zoning 2008
Fish Habitat Areas	Queensland fish habitat areas
Strategic Environmental Areas-designated	Regional Planning Interests Act - Strategic Environmental Areas
HES wetlands	Map of Queensland Wetland Environmental Values
Wetlands in HEV waters	HEV waters: - EPP Water intent for waters Source Wetlands: - Queensland Wetland Mapping (Current version 5) Source Watercourses: - Vegetation management watercourse and drainage feature map (1:100000 and 1:250000)
Wildlife habitat (threatened and special least concern)	- WildNet database species records - habitat suitability models (various) - SEQ koala habitat areas under the Koala Conservation Plan 2019 - Sea Turtle Nesting Areas records
VMA regulated regional ecosystems	Vegetation management regional ecosystem and remnant map
VMA Essential Habitat	Vegetation management - essential habitat map
VMA Wetlands	Vegetation management wetlands map
Legally secured offsets	Vegetation Management Act property maps of assessable vegetation. For offset register data-contact DES
Regulated Vegetation Map	Vegetation management - regulated vegetation management map

Appendix 3 - Acronyms and Abbreviations

AOI	- Area of Interest
DES	- Department of Environment and Science
EP Act	- *Environmental Protection Act 1994*
EPP	- Environmental Protection Policy
GDA94	- Geocentric Datum of Australia 1994
GEM	- General Environmental Matters
GIS	- Geographic Information System
MSES	- Matters of State Environmental Significance
NCA	- *Nature Conservation Act 1992*
RE	- Regional Ecosystem
SPP	- State Planning Policy
VMA	- *Vegetation Management Act 1999*

WildNet Records
Conservation Significant Species List

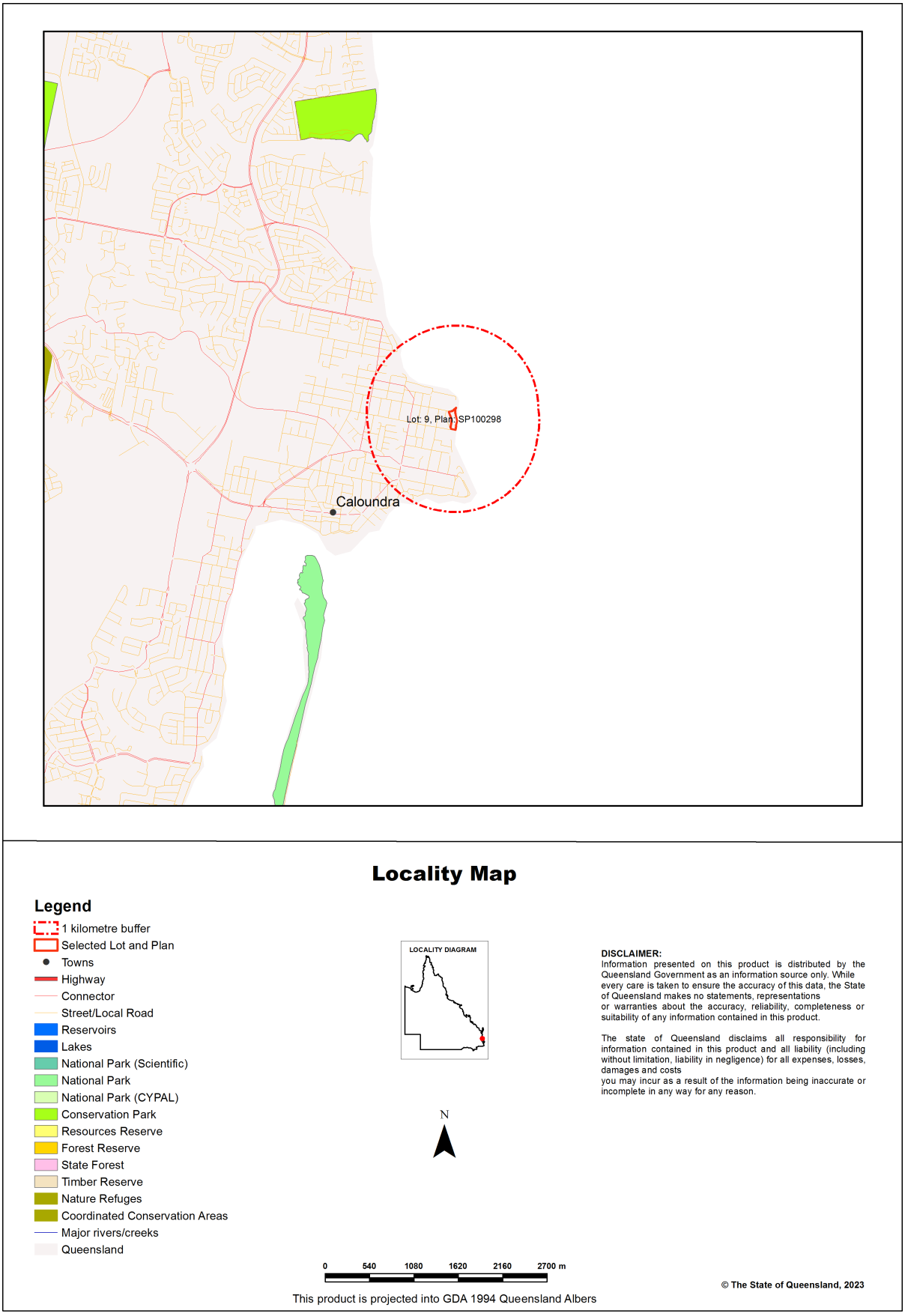
For the selected area of interest 1.54ha Lot: 9 Plan: SP100298

Current as at 01/06/2023

SB-WNC

Queensland Government

Map 1. Locality Map



Summary Information

The following table provides an overview of the area of interest Lot: 9 Plan: SP100298.

Table 1. Area of interest details

Size (ha)	1.54
Local Government(s)	Sunshine Coast Regional
Bioregion(s)	Southeast Queensland
Subregion(s)	Sunshine Coast - Gold Coast Lowlands
Catchment(s)	Maroochy

Protected Area(s)
No estates or reserves are located within the area of interest.

World Heritage Area(s)
No World Heritage Areas are located within the area of interest.

Ramsar Area(s)
No Ramsar Areas are located within the area of interest.

Conservation Significant Species List

Introduction

This report is derived from a spatial layer generated from the WildNet database managed by the Department of Environment and Science. The layer which is generated weekly contains the WildNet wildlife records that are not classed as erroneous or duplicate, that have a location precision equal to or less than 10000 metres and do not have a count of zero.

Conservation significant species are species listed:

- as threatened or near threatened under the Nature Conservation Act 1992;
- as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* or
- migratory species protected under the following international agreements:
  - Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)
  - China-Australia Migratory Bird Agreement
  - Japan-Australia Migratory Bird Agreement
  - Republic of Korea-Australia Migratory Bird Agreement

The WildNet dataset is constantly being enhanced and the taxonomic and status information revised. If a species is not listed in this report, it does not mean it doesn't occur there and listed species may also no longer inhabit the area. It is recommended that you also access other internal and external data sources for species information in your area of interest (Refer Links and Support).

Table 2 lists the species recorded within the area of interest and its one kilometre buffer.

Table 2. Conservation significant species recorded within the area of interest and its one kilometre buffer

Taxon Id	Kingdom	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1965	Animalia	Aves	Apodidae	*Apus pacificus*	fork-tailed swift	SL	None	0	1	31/03/1966
1971	Animalia	Aves	Apodidae	*Hirundapus caudacutus*	white-throated needletail	V	V	0	10	31/03/2006
1946	Animalia	Aves	Charadriidae	*Charadrius bicinctus*	double-banded plover	SL	None	0	1	31/05/1976
1948	Animalia	Aves	Charadriidae	*Charadrius leschenaultii*	greater sand plover	V	V	0	1	31/07/1965

Taxon Id	Kingdom	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1936	Animalia	Aves	Charadriidae	*Charadrius mongolus*	lesser sand plover	E	E	0	1	29/02/1984
1944	Animalia	Aves	Charadriidae	*Pluvialis fulva*	Pacific golden plover	SL	None	0	2	18/11/2001
1282	Animalia	Aves	Fregatidae	*Fregata minor*	great frigatebird	SL	None	0	1	05/04/1989
1886	Animalia	Aves	Laridae	*Gelochelidon nilotica*	gull-billed tern	SL	None	0	18	12/08/2018
1896	Animalia	Aves	Laridae	*Hydroprogne caspia*	Caspian tern	SL	None	0	10	18/11/2021
1899	Animalia	Aves	Laridae	*Sterna hirundo*	common tern	SL	None	0	21	05/12/2020
1905	Animalia	Aves	Laridae	*Sternula albifrons*	little tern	SL	None	0	3	01/01/2017
1895	Animalia	Aves	Laridae	*Thalasseus bergii*	crested tern	SL	None	1	171	09/01/2022
1595	Animalia	Aves	Monarchidae	*Monarcha melanopsis*	black-faced monarch	SL	None	0	2	27/11/2003
1597	Animalia	Aves	Monarchidae	*Symposiachrus trivirgatus*	spectacled monarch	SL	None	0	3	03/05/2003
1702	Animalia	Aves	Pandionidae	*Pandion haliaetus cristatus*	eastern osprey	SL	None	0	238	03/12/2021
1273	Animalia	Aves	Phaethontidae	*Phaethon rubricauda*	red-tailed tropicbird	V	None	0	1	27/07/1984
1188	Animalia	Aves	Procellariidae	*Ardenna pacifica*	wedge-tailed shearwater	V	None	0	1	18/12/1992
1190	Animalia	Aves	Procellariidae	*Ardenna tenuirostris*	short-tailed shearwater	SL	None	0	1	16/10/1991
1242	Animalia	Aves	Procellariidae	*Calonectris leucomelas*	streaked shearwater	SL	None	0	1	25/03/1984
1223	Animalia	Aves	Procellariidae	*Macronectes halli*	northern giant-petrel	V	V	0	1	13/07/1997
1578	Animalia	Aves	Rhipiduridae	*Rhipidura rufifrons*	rufous fantail	SL	None	0	2	16/01/2002
1883	Animalia	Aves	Rostratulidae	*Rostratula australis*	Australian painted-snipe	E	E	0	1	23/06/2001
1872	Animalia	Aves	Scolopacidae	*Arenaria interpres*	ruddy turnstone	SL	None	0	6	12/01/2019
1867	Animalia	Aves	Scolopacidae	*Limosa lapponica baueri*	Western Alaskan bar-tailed godwit	V	V	0	2	25/02/2017
1843	Animalia	Aves	Scolopacidae	*Numenius madagascariensis*	eastern curlew	E	CE	0	2	04/09/1992
1845	Animalia	Aves	Scolopacidae	*Numenius phaeopus*	whimbrel	SL	None	0	3	16/01/1999
1860	Animalia	Aves	Scolopacidae	*Tringa brevipes*	grey-tailed tattler	SL	None	0	1	13/03/1966
1861	Animalia	Aves	Scolopacidae	*Tringa incana*	wandering tattler	SL	None	0	119	03/12/2021

Taxon Id	Kingdom	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1268	Animalia	Aves	Sulidae	*Sula leucogaster*	brown booby	SL	None	0	1	16/01/1999
1055	Animalia	Mammalia	Balaenopteridae	*Megaptera novaeangliae*	humpback whale	C	None	0	3	27/11/2003
17783	Plantae	Equisetopsida	Burmanniaceae	*Burmannia disticha*	None	SL	None	1	1	31/05/1977

Taxon Id: Unique identifier of the taxon from the WildNet database.

NCA: Queensland conservation status of the taxon under the *Nature Conservation Act 1992* (Least Concern (C), Critically Endangered (CR), Endangered (E), Extinct (EX), Near Threatened (NT), Extinct in the Wild (PE), Special Least Concern (SL), and Vulnerable (V)).

EPBC: Australian conservation status of the taxon under the *Environment Protection and Biodiversity Conservation Act 1999* (Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Vulnerable (V), and Extinct in the Wild (XW)).

Specimens: The number of specimen-backed records of the taxon.

Records: The total number of records of the taxon.

Last record: Date of latest record of the taxon.

Links and Support

Other sites that deliver species information from the WildNet database include:

- Species profile search - access species information approved for publication including species names, statuses, notes, images, distribution maps and records
- Species lists - generate species lists for Queensland protected areas, forestry areas, local governments and areas defined using coordinates
- Biomaps - view biodiversity information, including WildNet records approved for publication, and generate reports
- Queensland Globe - view spatial information, including WildNet records approved for publication
- Qld wildlife data API - access WildNet species information approved for publication such as notes, images and records etc.
- Wetland*Maps* - view species records, survey locations etc. approved for publication
- Wetland*Summary* - view wildlife statistics, species lists for a range of area types, and access WildNet species profiles
- WildNet wildlife records - published - Queensland - spatial layer of WildNet records approved for publication generated weekly
- Generalised distribution and densities of Queensland wildlife - Queensland species distributions and densities generalised to a 10 km grid resolution
- Conservation status of Queensland wildlife - access current lists of priority species for Queensland including nomenclature and status information
- Queensland Confidential Species - the list of species flagged as confidential in the WildNet database.

Please direct queries about this report to the WildNet Team.

Other useful sites for accessing Queensland biodiversity data include:

- Useful wildlife resources
- Queensland Government Data
- Atlas of Living Australia (ALA)
- Online Zoological Collections of Australian Museums (OZCAM)
- Australia's Virtual Herbarium (AVH)
- Protected Matters Search Tool

Disclaimer

resources.QLD.GOV.AU

Vegetation management report

For Lot: 9 Plan: SP100298

22/06/2023

Queensland Government

Recent changes

Updated mapping

Updated vegetation mapping was released on 8 September 2022 and includes the most recent Queensland Herbarium scientific updates to the Regulated Vegetation Management Map, regional ecosystems, wetland, high-value regrowth and essential habitat mapping.

The Department of Environment and Science have also updated their protected plant and koala protection mapping to align with the Queensland Herbarium scientific updates.

Overview

Based on the lot on plan details you have supplied, this report provides the following detailed information:

Property details - information about the specified Lot on Plan, lot size, local government area, bioregion(s), subregion(s) and catchment(s);

Vegetation management framework - an explanation of the application of the framework and contact details for the Department of Resources who administer the framework;

Vegetation management framework details for the specified Lot on Plan including:

- the vegetation management categories on the property;
- the vegetation management regional ecosystems on the property;
- vegetation management watercourses or drainage features on the property;
- vegetation management wetlands on the property;
- vegetation management essential habitat on the property;
- whether any area management plans are associated with the property;
- whether the property is coastal or non-coastal; and
- whether the property is mapped as Agricultural Land Class A or B;

Protected plant framework - an explanation of the application of the framework and contact details for the Department of Environment and Science who administer the framework, including:

- high risk areas on the protected plant flora survey trigger map for the property;

Koala protection framework - an explanation of the application of the framework and contact details for the Department of Environment and Science who administer the framework; and

Koala protection framework details for the specified Lot on Plan including:

- the koala district the property is located in;
- koala priority areas on the property;
- core and locally refined koala habitat areas on the property;
- whether the lot is located in an identified koala broad-hectare area; and
- koala habitat regional ecosystems on the property for core koala habitat areas.

This information will assist you to determine your options for managing vegetation under:

- the vegetation management framework, which may include:

- exempt clearing work;
- accepted development vegetation clearing code;
- an area management plan;
- a development approval;

- the protected plant framework, which may include:

- the need to undertake a flora survey;
- exempt clearing;
- a protected plant clearing permit;

- the koala protection framework, which may include:

- exempted development;
- a development approval;
- the need to undertake clearing sequentially and in the presence of a koala spotter.

Other laws

The clearing of native vegetation is regulated by both Queensland and Australian legislation, and some local governments also regulate native vegetation clearing. You may need to obtain an approval or permit under another Act, such as the Commonwealth Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Section 8 of this guide provides contact details of other agencies you should confirm requirements with, before commencing vegetation clearing.

Table of Contents

1. Property details

1.1 Tenure and title area

All of the lot, plan, tenure and title area information associated with property Lot: 9 Plan: SP100298, are listed in Table 1.

Table 1: Lot, plan, tenure and title area information for the property

Lot	Plan	Tenure	Property title area (sq metres)
9	SP100298	Reserve	15,625

The tenure of the land may affect whether clearing is considered exempt clearing work or may be carried out under an accepted development vegetation clearing code.

Does this property have a freehold tenure and is in the Wet Tropics of Queensland World Heritage Area?

No, this property is not located in the Wet Tropics of Queensland World Heritage Area.

1.2 Property location

Table 2 provides a summary of the locations for property Lot: 9 Plan: SP100298, in relation to natural and administrative boundaries.

Table 2: Property location details

Local Government(s)
Sunshine Coast Regional

Bioregion(s)	Subregion(s)
Southeast Queensland	Sunshine Coast - Gold Coast Lowlands

Catchment(s)
Maroochy

2. Vegetation management framework (administered by the Department of Resources)

The *Vegetation Management Act 1999* (VMA), the Vegetation Management Regulation 2012, the *Planning Act 2016* and the Planning Regulation 2017, in conjunction with associated policies and codes, form the Vegetation Management Framework.

The VMA does not apply to all land tenures or vegetation types. State forests, national parks, forest reserves and some tenures under the *Forestry Act 1959* and *Nature Conservation Act 1992* are not regulated by the VMA. Managing or clearing vegetation on these tenures may require approvals under these laws.

The following native vegetation is not regulated under the VMA but may require permit(s) under other laws:

- grass or non-woody herbage;
- a plant within a grassland regional ecosystem prescribed under Schedule 5 of the Vegetation Management Regulation 2012; and
- a mangrove.

2.1 Exempt clearing work

Exempt clearing work is an activity for which you do not need to notify the Department of Resources or obtain an approval under the vegetation management framework. Exempt clearing work was previously known as exemptions.

In areas that are mapped as Category X (white in colour) on the regulated vegetation management map (see section 4.1), and where the land tenure is freehold, indigenous land and leasehold land for agriculture and grazing purposes, the clearing of vegetation is considered exempt clearing work and does not require notification or development approval under the vegetation management framework. For all other land tenures, contact the Department of Resources before commencing clearing to ensure that the proposed activity is exempt clearing work.

A range of routine property management activities are considered exempt clearing work. A list of exempt clearing work is available at
https://www.qld.gov.au/environment/land/management/vegetation/clearing-approvals/exemptions.

Exempt clearing work may be affected if the proposed clearing area is subject to development approval conditions, a covenant, an environmental offset, an exchange area, a restoration notice, or an area mapped as Category A. Exempt clearing work may require approval under other Commonwealth, State or Local Government laws, or local government planning schemes. Contact the Department of Resources prior to clearing in any of these areas.

2.2 Accepted development vegetation clearing codes

Some clearing activities can be undertaken under an accepted development vegetation clearing code. The codes can be downloaded at
https://www.qld.gov.au/environment/land/management/vegetation/clearing-approvals/codes

If you intend to clear vegetation under an accepted development vegetation clearing code, you must notify the Department of Resources before commencing. The information in this report will assist you to complete the online notification form.

You can complete the online form at
https://apps.dnrm.qld.gov.au/vegetation/

2.3 Area management plans

Area Management Plans (AMP) provide an alternative approval system for vegetation clearing under the vegetation management framework. They list the purposes and clearing conditions that have been approved for the areas covered by the plan. It is not necessary to use an AMP, even when an AMP applies to your property.

On 8 March 2020, AMPs ended for fodder harvesting, managing thickened vegetation and managing encroachment. New notifications cannot be made for these AMPs. You will need to consider options for fodder harvesting, managing thickened vegetation or encroachment under a relevant accepted development vegetation clearing code or apply for a development approval.

New notifications can be made for all other AMPs. These will continue to apply until their nominated end date.

If an Area Management Plan applies to your property for which you can make a new notification, it will be listed in Section 3.6 of this report. Before clearing under one of these AMPs, you must first notify the Department of Resources and then follow the conditions and requirements listed in the AMP.
https://www.qld.gov.au/environment/land/management/vegetation/clearing-approvals/area-management-plans

2.4 Development approvals

If under the vegetation management framework your proposed clearing is not exempt clearing work, or is not permitted under an accepted development vegetation clearing code, or an AMP, you may be able to apply for a development approval. Information on how to apply for a development approval is available at
https://www.qld.gov.au/environment/land/management/vegetation/clearing-approvals/development

2.5. Contact information for the Department of Resources

For further information on the vegetation management framework:
Phone 135VEG (135 834)
Email vegetation@resources.qld.gov.au
Visit https://www.resources.qld.gov.au/?contact=vegetation to submit an online enquiry.

3. Vegetation management framework for Lot: 9 Plan: SP100298

3.1 Vegetation categories

The vegetation categories on your property are shown on the regulated vegetation management map in section 4.1 of this report. A summary of vegetation categories on the subject lot are listed in Table 3. Descriptions for these categories are shown in Table 4.

Table 3: Vegetation categories for subject property. Total area: 1.54ha

Vegetation category	Area (ha)
Category C	0.8
Category Water	0.1
Category X	0.7

Table 4: Description of vegetation categories

Category	Colour on Map	Description	Requirements / options under the vegetation management framework
A	red	Compliance areas, environmental offset areas and voluntary declaration areas	Special conditions apply to Category A areas. Before clearing, contact the Department of Resources to confirm any requirements in a Category A area.
B	dark blue	Remnant vegetation areas	Exempt clearing work, or notification and compliance with accepted development vegetation clearing codes, area management plans or development approval.
C	light blue	High-value regrowth areas	Exempt clearing work, or notification and compliance with managing Category C regrowth vegetation accepted development vegetation clearing code.
R	yellow	Regrowth within 50m of a watercourse or drainage feature in the Great Barrier Reef catchment areas	Exempt clearing work, or notification and compliance with managing Category R regrowth accepted development vegetation clearing code or area management plans.
X	white	Clearing on freehold land, indigenous land and leasehold land for agriculture and grazing purposes is considered exempt clearing work under the vegetation management framework. Contact the Department of Resources to clarify whether a development approval is required for other State land tenures.	No permit or notification required on freehold land, indigenous land and leasehold land for agriculture and grazing. A development approval may be required for some State land tenures.

Property Map of Assessable Vegetation (PMAV)

There is no Property Map of Assessable Vegetation (PMAV) present on this property.

3.2 Regional ecosystems

The endangered, of concern and least concern regional ecosystems on your property are shown on the vegetation management supporting map in section 4.2 and are listed in Table 5.

A description of regional ecosystems can be accessed online at
https://www.qld.gov.au/environment/plants-animals/plants/ecosystems/descriptions/

Table 5: Regional ecosystems present on subject property

Regional Ecosystem	VMA Status	Category	Area (Ha)	Short Description	Structure Category
12.9-10.22	Of concern	C	0.24	Closed sedgeland and/or shrubland on sedimentary rocks. Generally coastal	Other
12.9-10.4	Least concern	C	0.55	Eucalyptus racemosa subsp. racemosa woodland on sedimentary rocks	Sparse
non-rem	None	X	0.65	None	None
water	None	Water	0.10	None	None

Please note:

1. All area and area derived figures included in this table have been calculated via reprojecting relevant spatial features to Albers equal-area conic projection (central meridian = 146, datum Geocentric Datum of Australia 1994). As a result, area figures may differ slightly if calculated for the same features using a different co-ordinate system.

2. If Table 5 contains a Category 'plant', please be aware that this refers to 'plantations' such as forestry, and these areas are considered non-remnant under the VMA.

The VMA status of the regional ecosystem (whether it is endangered, of concern or least concern) also determines if any of the following are applicable:

- exempt clearing work;
- accepted development vegetation clearing codes;
- performance outcomes in State Code 16 of the State Development Assessment Provisions (SDAP).

3.3 Watercourses

Vegetation management watercourses and drainage features for this property are shown on the vegetation management supporting map in section 4.2.

3.4 Wetlands

There are no vegetation management wetlands present on this property.

3.5 Essential habitat

Under the VMA, essential habitat for protected wildlife is native wildlife prescribed under the *Nature Conservation Act 1992* (NCA) as critically endangered, endangered, vulnerable or near-threatened wildlife.

Essential habitat for protected wildlife includes suitable habitat on the lot, or where a species has been known to occur up to 1.1 kilometres from a lot on which there is assessable vegetation. These important habitat areas are protected under the VMA.

Any essential habitat on this property will be shown as blue hatching on the vegetation supporting map in section 4.2.

If essential habitat is identified on the lot, information about the protected wildlife species is provided in Table 6 below. The numeric labels on the vegetation management supporting map can be cross referenced with Table 6 to outline the essential habitat factors for that particular species. There may be essential habitat for more than one species on each lot, and areas of Category A, Category B and Category C can be mapped as Essential Habitat.

Essential habitat is compiled from a combination of species habitat models and buffered species records. Regional ecosystem is a mandatory essential habitat factor, unless otherwise stated. Essential habitat, for protected wildlife, means an

area of vegetation shown on the Regulated Vegetation Management Map -

1) that has at least 3 essential habitat factors for the protected wildlife that must include any essential habitat factors that are stated as mandatory for the protected wildlife in the essential habitat database. Essential habitat factors are comprised of - regional ecosystem (mandatory for most species), vegetation community, altitude, soils, position in landscape; or

2) in which the protected wildlife, at any stage of its life cycle, is located.

If there is no essential habitat mapping shown on the vegetation management supporting map for this lot, and there is no table in the sections below, it confirms that there is no essential habitat on the lot.

Category A and/or Category B and/or Category C

Table 6: Essential habitat in Category A and/or Category B and/or Category C

Label	Scientific Name	Common Name	NCA Status	Vegetation Community	Altitude	Soils	Position in Landscape
35	Caretta caretta	loggerhead turtle	E	Tropical and warm temperate marine waters, including coral and rocky reefs, soft-bottomed bays and estuaries; with water temperature range of 16o to 20oC. Nests well above high tide mark on sandy beach.	Sea level to 50m.	Sandy substrates.	Beach.
1867	Limosa lapponica baueri	Western Alaskan bar-tailed godwit	V	Foraging on large intertidal mudflat/sandflat, banks in estuaries, inlets, bays and coastal lagoons; also saline wetlands, saltmarsh, sandy beach, rock platform and coral reef-flat. Roost on sandy beach/spit and near saltmarsh.	Sea level to 100m.	Sand and mud substrates.	Associated with coastlines and wetlands.
1883	Rostratula australis	Australian painted-snipe	E	Shallow ephemeral and permanent swamps, water meadows and damp lake margins with rushes, long grass and herbage (e.g. lignum, chenopods) in good condition, as well as areas of muddy ground; also uses saltmarsh, samphire flats and waterlogged grasslands with trees present (e.g. Eucalyptus camaldulensis, E. brownii). Nest in shallow grass-lined hollow in damp ground under low shrub or grass tussock near shallow water.	None	None	Associated with wetlands.
1936	Charadrius mongolus	lesser sand plover	E	Foraging on sandy beach, intertidal mudflat/sandflat and mangrove mudflat of coastal bays and estuaries. Also inland at lakes and soaks. Roost on beach, banks, sand/shell spits, rocky spits and exposed reef.	Sea level to 100m.	Sand and mud substrates.	Associated with coastlines and coastal and inland wetlands.

Label	Regional Ecosystem (mandatory unless otherwise specified)
35	All regional ecosystems adjacent to beach.
1867	2.1.1, 2.1.4, 2.1.5, 3.1.6, 7.1.2, 7.1.3, 8.1.2, 8.1.3, 8.1.4, 11.1.1, 11.1.2, 11.1.3, 12.1.2, 12.1.3.
1883	All regional ecosystems within the stream/wetland buffer as determined by VMA code.
1936	2.1.1, 2.1.2, 2.1.3, 2.1.5, 3.1.1, 3.1.2, 3.1.3, 3.1.4, 7.1.1, 7.1.3, 8.1.2, 11.1.2, 11.1.4, 12.1.3.

3.6 Area Management Plan(s)

Nil

3.7 Coastal or non-coastal

For the purposes of the accepted development vegetation clearing codes and State Code 16 of the State Development Assessment Provisions (SDAP), this property is regarded as*

Coastal

*See also Map 4.3

3.8 Agricultural Land Class A or B

The following can be used to identify Agricultural Land Class A or B areas under the "Managing regulated regrowth vegetation" accepted development vegetation clearing code:

Does this lot contain land that is mapped as Agricultural Land Class A or B in the State Planning Interactive Mapping System?

No Class A

No Class B

Note - This confirms Agricultural Land Classes as per the State Planning Interactive Mapping System only. This response does not include Agricultural Land Classes identified under local government planning schemes. For further information, check the Planning Scheme for your local government area.

See Map 4.4 to identify the location and extent of Class A and/or Class B Agricultural land on Lot: 9 Plan: SP100298.

4. Vegetation management framework maps

Vegetation management maps included in this report may also be requested individually at:
https://www.resources.qld.gov.au/qld/environment/land/vegetation/vegetation-map-request-form

Regulated vegetation management map

The regulated vegetation management map shows vegetation categories needed to determine clearing requirements. These maps are updated monthly to show new property maps of assessable vegetation (PMAV).

Vegetation management supporting map

The vegetation management supporting map provides information on regional ecosystems, wetlands, watercourses and essential habitat.

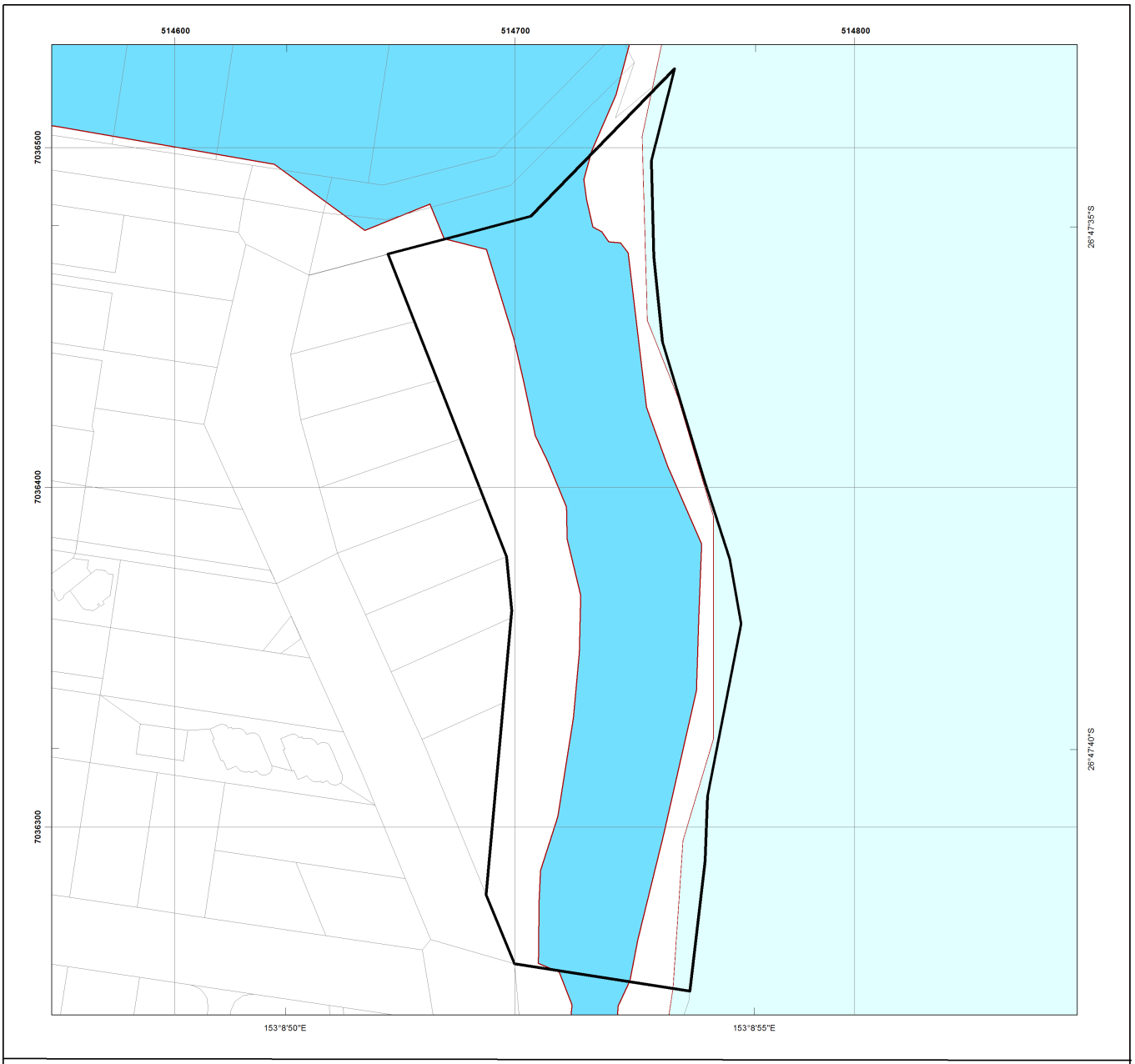
Coastal/non-coastal map

The coastal/non-coastal map confirms whether the lot, or which parts of the lot, are considered coastal or non-coastal for the purposes of the accepted development vegetation clearing codes and State Code 16 of the State Development Assessment Provisions (SDAP).

Agricultural Land Class A or B as per State Planning Policy: State Interest for Agriculture

The Agricultural Land Class map confirms the location and extent of land mapped as Agricultural Land Classes A or B as identified on the State Planning Interactive Mapping System. Please note that this map does not include areas identified as Agricultural Land Class A or B in local government planning schemes. This map can be used to identify Agricultural Land Class A or B areas under the "Managing regulated regrowth vegetation" accepted development vegetation clearing code.

4.1 Regulated vegetation management map

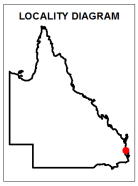


Regulated Vegetation Management Map

Legend

- Selected Lot and Plan
- Category A area (Vegetation offsets/compliance notices/VDecs)
- Category B area (Remnant vegetation)
- Category C area (High-value regrowth vegetation)
- Category R area (Reef regrowth watercourse vegetation)
- Category X area (Exempt clearing work on Freehold, Indigenous and Leasehold land)
- Water
- Other land parcel boundaries

LOCALITY DIAGRAM



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This product is projected into:
GDA 1994 MGA Zone 56

Disclaimer:
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Additional information required for the assessment of vegetation values is provided in the accompanying "Vegetation Management Supporting map". For further information go to the web site: www.resources.qld.gov.au or contact the Department of Resources.

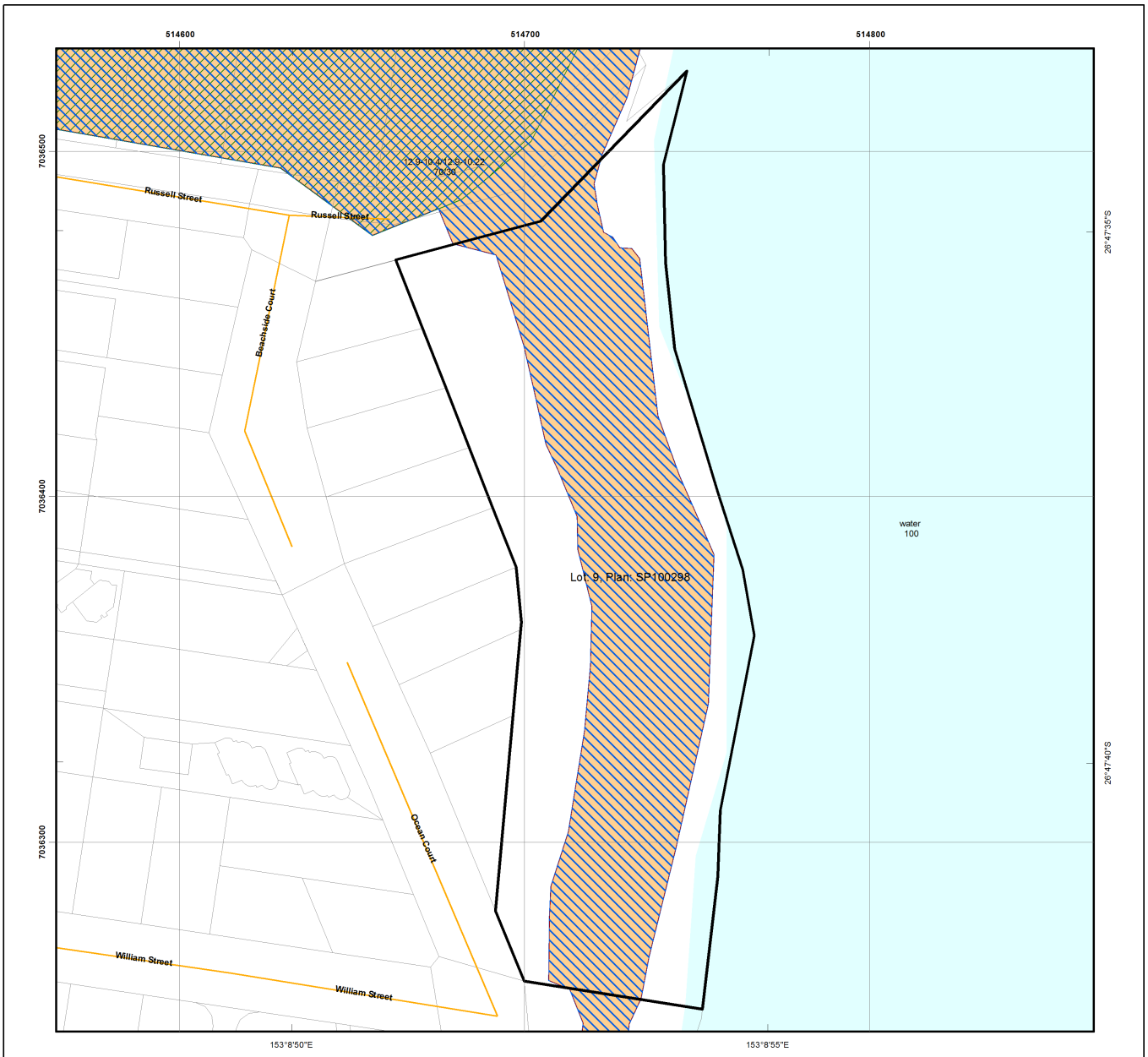
Digital data for the regulated vegetation management map is available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

Land parcel boundaries are provided as locational aid only.

This map is updated on a monthly basis to ensure new PMAVs are included as they are approved.

Queensland Government

4.2 Vegetation management supporting map



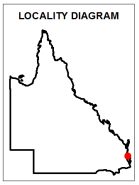
Vegetation Management Supporting Map

Legend

- Selected Lot and Plan
- Category A or B area containing endangered regional ecosystems
- Category A or B area containing of concern regional ecosystems
- Category A or B area that is a least concern regional ecosystem
- Category C or R area containing endangered regional ecosystems
- Category C or R area containing of concern regional ecosystems
- Category C or R area that is a least concern regional ecosystem
- Category X area
- Water
- Wetland on the vegetation management wetlands map
- Essential habitat on the essential habitat map
- Essential habitat species record
- Watercourses and drainage features on the vegetation management watercourse and drainage features map (Stream order shown as black number against stream where available)
- Highway
- Connector
- Street/Local Road
- National Parks, State Forest and other reserves
- Other land parcel boundaries

Queensland Government

LOCALITY DIAGRAM



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This product is projected into: GDA 1994 MGA Zone 56

Labels for Essential Habitat are centred on the area of enquiry.

Regional ecosystem linework has been compiled at a scale of 1:100 000, except in designated areas where a compilation scale of 1:50 000 is available. Linework should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100 000 is +/- 100 metres.

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Additional information may be required for the purposes of land clearing or assessment of a regional ecosystem map or PMAV applications. For further information go to the web site: www.resources.qld.gov.au or contact the Department of Resources.

Digital data for the vegetation management watercourse and drainage feature map, vegetation management wetlands map, essential habitat map and the vegetation management remnant and regional ecosystem map are available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

Land parcel boundaries are provided as locational aid only.

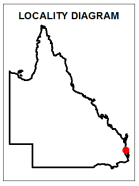
4.3 Coastal/non-coastal map

Coastal/Non Coastal Map

Legend

- Selected Lot and Plan
- Coastal
- Non Coastal
- Other land parcel boundaries

LOCALITY DIAGRAM



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This product is projected into:
GDA 1994 MGA Zone 56

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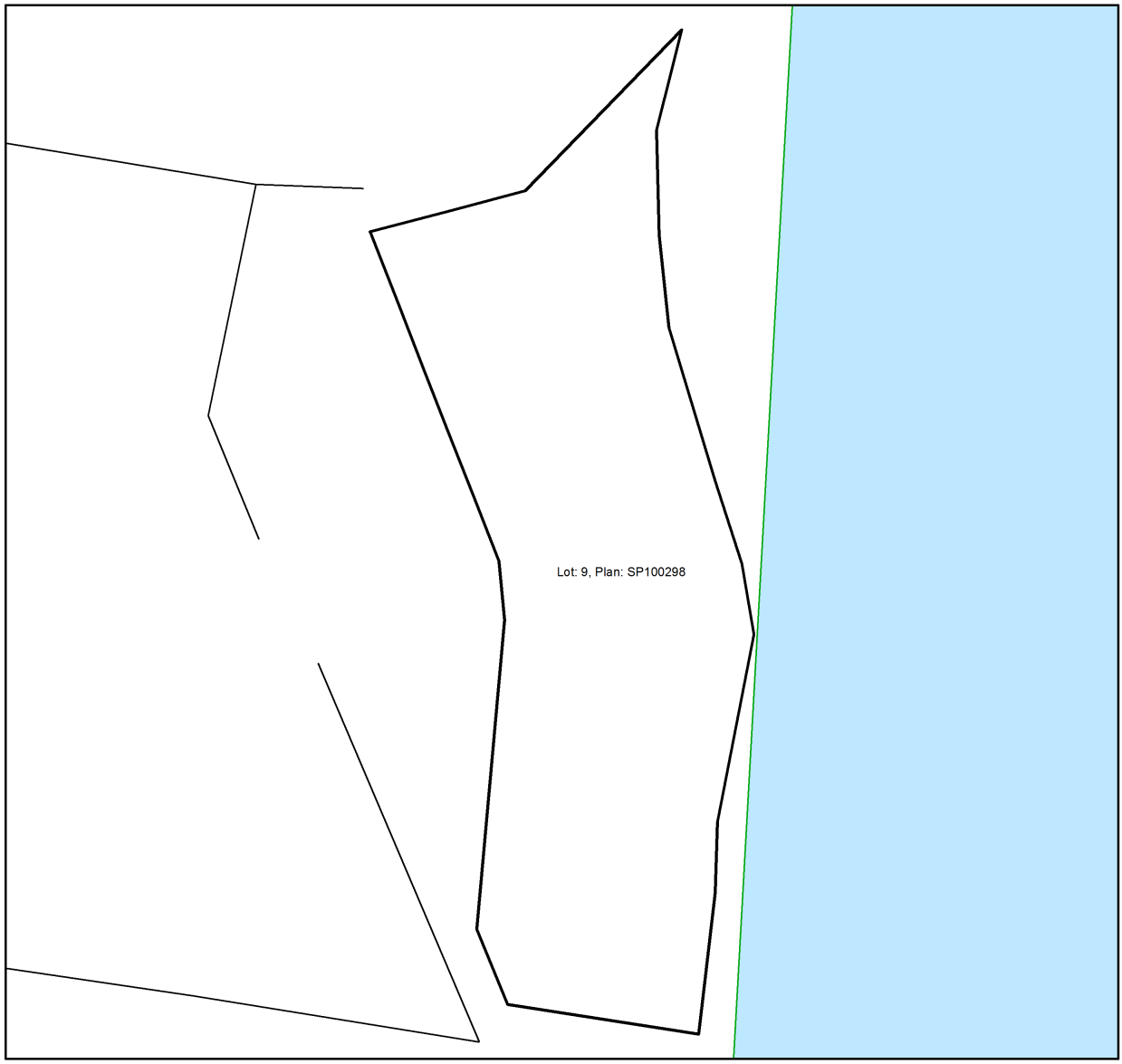
Queensland Government

4.4 Agricultural Land Class A or B as per State Planning Policy: State Interest for Agriculture



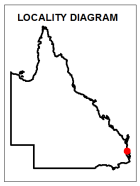
Agricultural Land Class A or B
as per State Planning Policy: State Interest for Agriculture

Legend

- Selected Lot and Plan
- Towns
- Rivers and creeks
- Freeways / motorways; Highways
- Secondary roads; Streets

Agricultural land class A or B

- A
- B
- Not class A or B



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This product is projected into GDA 1994 MGA Zone 56

5. Protected plants framework (administered by the Department of Environment and Science (DES))

In Queensland, all plants that are native to Australia are protected plants under the *Nature Conservation Act 1992* (NCA). The NCA regulates the clearing of protected plants 'in the wild' (see Operational policy: When a protected plant in Queensland is considered to be 'in the wild') that are listed as critically endangered, endangered, vulnerable or near threatened under the Act.

Please note that the protected plant clearing framework applies irrespective of the classification of the vegetation under the *Vegetation Management Act 1999* and any approval or exemptions given under another Act, for example, the *Vegetation Management Act 1999* or *Planning Regulation 2017*.

5.1 Clearing in high risk areas on the flora survey trigger map

The flora survey trigger map identifies high-risk areas for threatened and near threatened plants. These are areas where threatened or near threatened plants are known to exist or are likely to exist based on the habitat present. The flora survey trigger map for this property is provided in section 5.5.

If you are proposing to clear an area shown as high risk on the flora survey trigger map, a flora survey of the clearing impact area must be undertaken by a suitably qualified person in accordance with the Flora survey guidelines. The main objective of a flora survey is to locate any threatened or near threatened plants that may be present in the clearing impact area.

If the flora survey identifies that threatened or near threatened plants are not present within the clearing impact area or clearing within 100m of a threatened or near threatened plant can be avoided, the clearing activity is exempt from a permit. An exempt clearing notification form must be submitted to the Department of Environment and Science, with a copy of the flora survey report, at least one week prior to clearing.

If the flora survey identifies that threatened or near threatened plants are present in, or within 100m of, the area to be cleared, a clearing permit is required before any clearing is undertaken. The flora survey report, as well as an impact management report, must be submitted with the clearing permit application form.

5.2 Clearing outside high risk areas on the flora survey trigger map

In an area other than a high risk area, a clearing permit is only required where a person is, or becomes aware that threatened or near threatened plants are present in, or within 100m of, the area to be cleared. You must keep a copy of the flora survey trigger map for the area subject to clearing for five years from the day the clearing starts. If you do not clear within the 12 month period that the flora survey trigger map was printed, you need to print and check a new flora survey trigger map.

5.3 Exemptions

Many activities are 'exempt' under the protected plant clearing framework, which means that clearing of native plants that are in the wild can be undertaken for these activities with no need for a flora survey or a protected plant clearing permit. The Information sheet - General exemptions for the take of protected plants provides some of these exemptions.

Some exemptions under the NCA are the same as exempt clearing work (formerly known as exemptions) under the *Vegetation Management Act 1999* (i.e. listed in Schedule 21 of the Planning Regulations 2017) while some are different.

5.4 Contact information for DES

For further information on the protected plants framework:
Phone 1300 130 372 (and select option four)
Email palm@des.qld.gov.au
Visit https://www.qld.gov.au/environment/plants-animals/plants/protected-plants

5.5 Protected plants flora survey trigger map

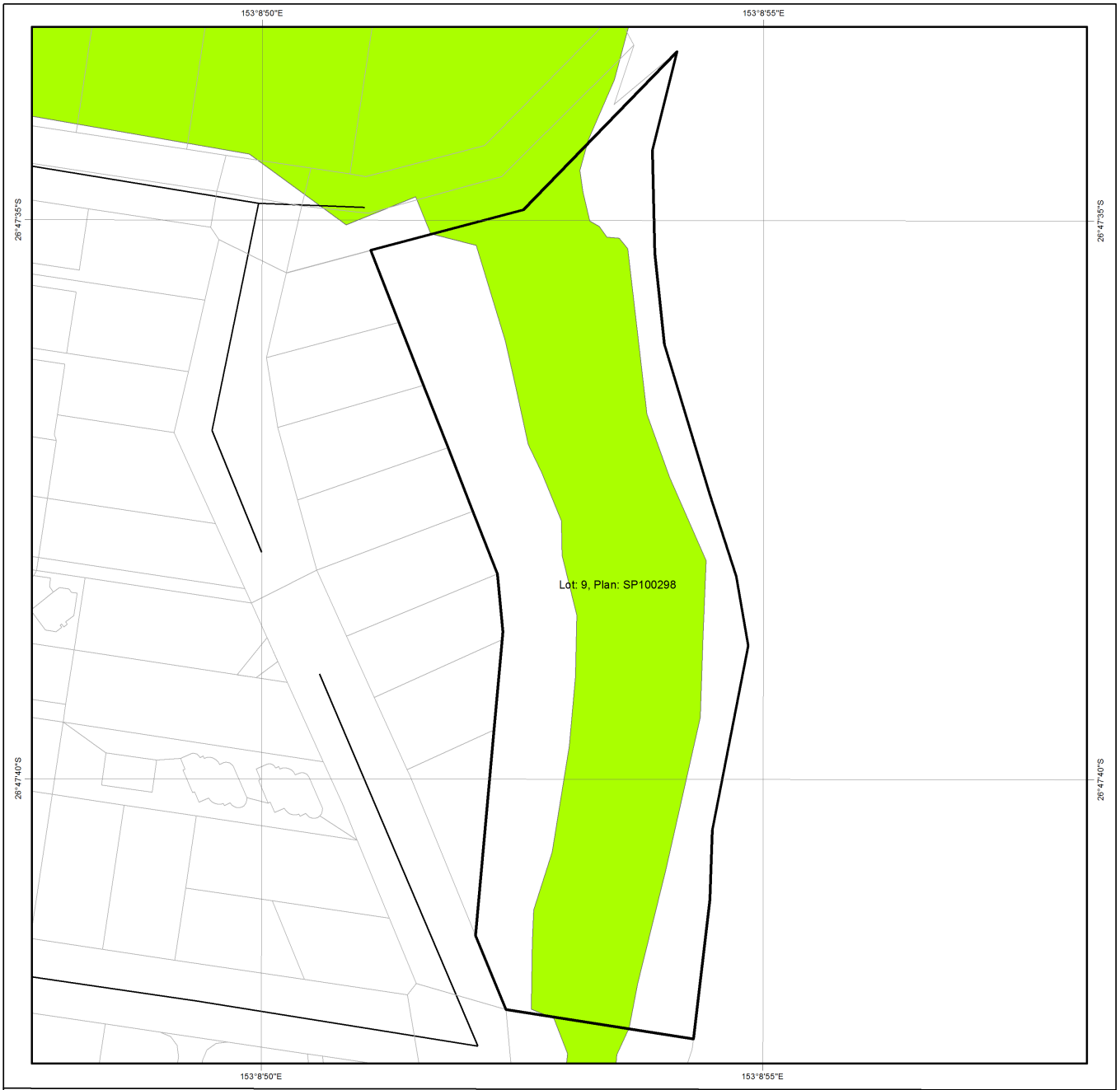
This map included may also be requested individually at: https://apps.des.qld.gov.au/map-request/flora-survey-trigger/.

Updates to the data informing the flora survey trigger map

The flora survey trigger map will be reviewed, and updated if necessary, at least every 12 months to ensure the map reflects the most up-to-date and accurate data available.

Species information

Please note that flora survey trigger maps do not identify species associated with 'high risk areas'. While some species information may be publicly available, for example via the Queensland Spatial Catalogue, the Department of Environment and Science does not provide species information on request. Regardless of whether species information is available for a particular high risk area, clearing plants in a high risk area may require a flora survey and/or clearing permit. Please see the Department of Environment and Science webpage on the clearing of protected plants for more information.



Protected Plants Flora Survey Trigger Map

Legend

- Selected Lot and Plan
- High risk area
- Other land parcel boundaries.
- Freeways / motorways / highways
- Secondary roads / streets

LOCALITY DIAGRAM

N

0 10 20 30 40 50 m

This product is projected into:
GDA 1994 MGA Zone 56

This map shows areas where particular provisions of the Nature Conservation Act 1992 apply to the clearing of protected plants.

Land parcel boundaries are provided as locational aid only.

This map is produced at a scale relevant to the size of the area selected and should be printed as A4 size in portrait orientation.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Science at palm@des.qld.gov.au

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6. Koala protection framework (administered by the Department of Environment and Science (DES))

The koala (*Phascolarctos cinereus*) is listed in Queensland as endangered by the Queensland Government under *Nature Conservation Act 1992* and by the Australian Government under the *Environment Protection and Biodiversity Conservation Act 1999*.

The Queensland Government's koala protection framework is comprised of the *Nature Conservation Act 1992*, the Nature Conservation (Animals) Regulation 2020, the Nature Conservation (Koala) Conservation Plan 2017, the *Planning Act 2016* and the Planning Regulation 2017.

6.1 Koala mapping

6.1.1 Koala districts

The parts of Queensland where koalas are known to occur has been divided into three koala districts - koala district A, koala district B and koala district C. Each koala district is made up of areas with comparable koala populations (e.g. density, extent and significance of threatening processes affecting the population) which require similar management regimes.

Section 7.1 identifies which koala district your property is located in.

6.1.2 Koala habitat areas

Koala habitat areas are areas of vegetation that have been determined to contain koala habitat that is essential for the conservation of a viable koala population in the wild based on the combination of habitat suitability and biophysical variables with known relationships to koala habitat (e.g. landcover, soil, terrain, climate and ground water). In order to protect this important koala habitat, clearing controls have been introduced into the Planning Regulation 2017 for development in koala habitat areas.

Please note that koala habitat areas only exist in koala district A which is the South East Queensland "Shaping SEQ" Regional Plan area. These areas include the local government areas of Brisbane, Gold Coast, Logan, Lockyer Valley, Ipswich, Moreton Bay, Noosa, Redland, Scenic Rim, Somerset, Sunshine Coast and Toowoomba (urban extent).

There are two different categories of koala habitat area (core koala habitat area and locally refined koala habitat), which have been determined using two different methodologies. These methodologies are described in the document Spatial modelling in South East Queensland.

Section 7.2 shows any koala habitat area that exists on your property.

Under the Nature Conservation (Koala) Conservation Plan 2017, an owner of land (or a person acting on the owner's behalf with written consent) can request to make, amend or revoke a koala habitat area determination if they believe, on reasonable grounds, that the existing determination for all or part of their property is incorrect.

More information on requests to make, amend or revoke a koala habitat area determination can be found in the document Guideline - Requests to make, amend or revoke a koala habitat area determination.

The koala habitat area map will be updated at least annually to include any koala habitat areas that have been made, amended or revoked.

Changes to the koala habitat area map which occur between annual updates because of a request to make, amend or revoke a koala habitat area determination can be viewed on the register of approved requests to make, amend or revoke a koala habitat area available at: https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping/koalamaps. The register includes the lot on plan for the change, the date the decision was made and the map issued to the landholder that shows areas determined to be koala habitat areas.

6.1.3 Koala priority areas

Koala priority areas are large, connected areas that have been determined to have the highest likelihood of achieving conservation outcomes for koalas based on the combination of habitat suitability, biophysical variables with known relationships to koala habitat (e.g. landcover, soil, terrain, climate and ground water) and a koala conservation cost benefit analysis.

Conservation efforts will be prioritised in these areas to ensure the conservation of viable koala populations in the wild including a focus on management (e.g. habitat protection, habitat restoration and threat mitigation) and monitoring. This includes a prohibition on clearing in koala habitat areas that are in koala priority areas under the Planning Regulation 2017 (subject to some exemptions).

Please note that koala priority areas only exist in koala district A which is the South East Queensland "Shaping SEQ" Regional Plan area. These areas include the local government areas of Brisbane, Gold Coast, Logan, Lockyer Valley,

Ipswich, Moreton Bay, Noosa, Redland, Scenic Rim, Somerset, Sunshine Coast and Toowoomba (urban extent).

Section 7.2 identifies if your property is in a koala priority area.

6.1.4 Identified koala broad-hectare areas

There are seven identified koala broad-hectare areas in SEQ. These are areas of koala habitat that are located in areas committed to meet development targets in the SEQ Regional Plan to accommodate SEQ's growing population including bring-forward Greenfield sites under the Queensland Housing Affordability Strategy and declared master planned areas under the repealed *Sustainable Planning Act 2009* and the repealed *Integrated Planning Act 1997*.

Specific assessment benchmarks apply to development applications for development proposed in identified koala broad-hectare areas to ensure koala conservation measures are incorporated into the proposed development.

Section 7.2 identifies if your property is in an identified koala broad-hectare area.

6.2 Koala habitat planning controls

On 7 February 2020, the Queensland Government introduced new planning controls to the Planning Regulation 2017 to strengthen the protection of koala habitat in South East Queensland (i.e. koala district A).

More information on these planning controls can be found here:
https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping/legislation-policy.

As a high-level summary, the koala habitat planning controls make:

- development that involves interfering with koala habitat (defined below) in an area that is both a koala priority area and a koala habitat area, prohibited development (i.e. development for which a development application cannot be made);
- development that involves interfering with koala habitat (defined below) in an area that is a koala habitat area but is not a koala priority area, assessable development (i.e. development for which development approval is required); and
- development that is for extractive industries where the development involves interfering with koala habitat (defined below) in an area that is both a koala habitat area and a key resource area, assessable development (i.e. development for which development approval is required).

Interfering with koala habitat means:

1) Removing, cutting down, ringbarking, pushing over, poisoning or destroying in anyway, including by burning, flooding or draining native vegetation in a koala habitat area; but
2) Does not include destroying standing vegetation by stock or lopping a tree.

However, these planning controls do not apply if the development is exempted development as defined in Schedule 24 of the Planning Regulation 2017. More information on exempted development can be found here:
https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping/legislation-policy.

There are also assessment benchmarks that apply to development applications for:

- building works, operational works, material change of use or reconfiguration of a lot where:
  - the local government planning scheme makes the development assessable;
  - the premises includes an area that is both a koala priority area and a koala habitat area; and
  - the development does not involve interfering with koala habitat (defined above); and

- development in identified koala broad-hectare areas.

The Guideline - Assessment Benchmarks in relation to Koala Habitat in South East Queensland assessment benchmarks outlines these assessment benchmarks, the intent of these assessment benchmarks and advice on how proposed development may meet these assessment benchmarks.

6.3 Koala Conservation Plan clearing requirements

Section 10 and 11 of the Nature Conservation (Koala) Conservation Plan 2017 prescribes requirements that must be met when clearing koala habitat in koala district A and koala district B.

These clearing requirements are independent to the koala habitat planning controls introduced into the Planning Regulation 2017, which means they must be complied with irrespective of any approvals or exemptions offered under other legislation.

Unlike the clearing controls prescribed in the Planning Regulation 2017 that are to protect koala habitat, the clearing requirements prescribed in the Nature Conservation (Koala) Conservation Plan 2017 are in place to prevent the injury or death of koalas when koala habitat is being cleared.

6.4 Contact information for DES

For further information on the koala protection framework:
Phone 13 QGOV (13 74 68)
Email koala.assessment@des.qld.gov.au
Visit https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping

7. Koala protection framework details for Lot: 9 Plan: SP100298

7.1 Koala districts

Koala District A

7.2 Koala priority area, koala habitat area and identified koala broad-hectare area map

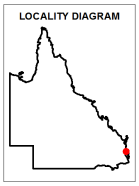
Koala priority area, koala habitat area and identified koala broad-hectare area map

Legend

- Selected Lot and Plan
- Koala habitat area (core)
- Koala habitat area (locally refined)
- Koala priority area
- Identified koala broad-hectare area
- Cadastral Boundaries
- Towns
- Highway
- Connector
- Street/Local Road
- Major rivers/creeks
- Queensland

The koala habitat mapping within South East Queensland uses regional ecosystem linework compiled at a scale varying from 1:25,000 to 1:100,000. Linework should be used as a guide only. The positional accuracy of regional ecosystem data mapped at a scale of 1:100,000 is +/- 100 metres.

LOCALITY DIAGRAM



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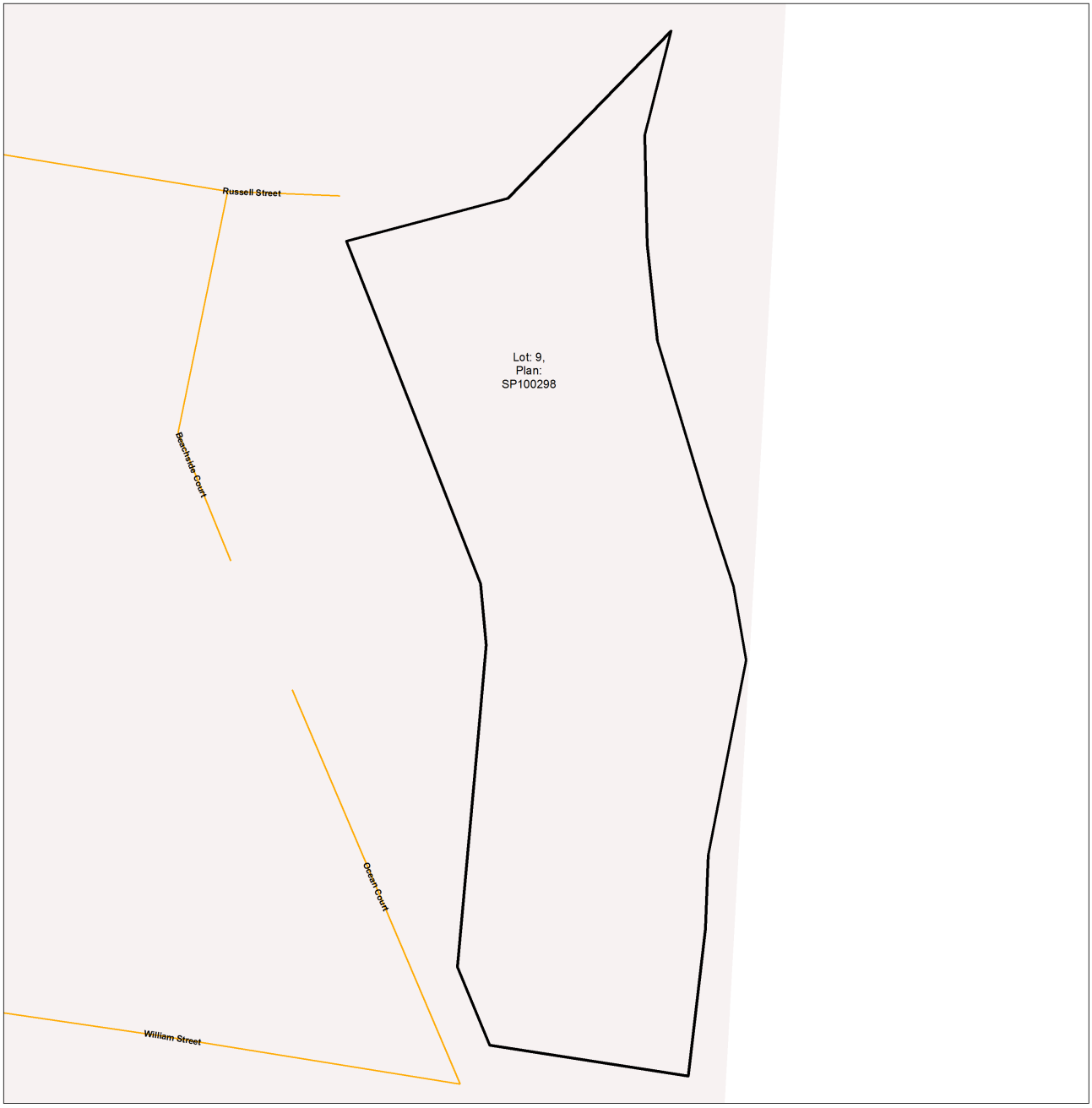
The koala conservation plan maps will be updated at least annually to include any koala habitat areas that have been made, amended or revoked.

In order to ensure that the most recent map for an area of interest can be accessed, prior to the annual update, a register of changes made to koala habitat areas as a result of the map amendment process will be available at: https://environment.des.qld.gov.au/wildlife/animals/living-with/koalas/mapping/. The register will include lot on plan for the change, the date the decision was made and the map issued to the landholder which shows areas determined to be koala habitat areas.

This product is projected into GDA 1994 MGA Zone 56

7.3 Koala habitat regional ecosystems for core koala habitat areas

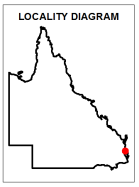


Koala habitat regional ecosystems for core koala habitat areas

Legend

- Selected Lot and Plan
- Koala habitat area (core)
- Towns
- Highway
- Connector
- Street/Local Road
- Major rivers/creeks
- Queensland

LOCALITY DIAGRAM



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This product is projected into GDA 1994 MGA Zone 56

8. Other relevant legislation contacts list

Activity	Legislation	Agency	Contact details
• Interference with overland flow • Earthworks, significant disturbance	*Water Act 2000* *Soil Conservation Act 1986*	Department of Regional Development, Manufacturing and Water (Queensland Government) Department of Resources (Queensland Government)	Ph: 13 QGOV (13 74 68) www.rdmw.qld.gov.au www.resources.qld.gov.au
• Indigenous Cultural Heritage	*Aboriginal Cultural Heritage Act 2003* *Torres Strait Islander Cultural Heritage Act 2003*	Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships	Ph: 13 QGOV (13 74 68) www.datsip.qld.gov.au
• Mining and environmentally relevant activities • Infrastructure development (coastal) • Heritage issues	*Environmental Protection Act 1994* *Coastal Protection and Management Act 1995* *Queensland Heritage Act 1992*	Department of Environment and Science (Queensland Government)	Ph: 13 QGOV (13 74 68) www.des.qld.gov.au
• Protected plants and protected areas	*Nature Conservation Act 1992*	Department of Environment and Science (Queensland Government)	Ph: 1300 130 372 (option 4) palm@des.qld.gov.au www.des.qld.gov.au
• Koala mapping and regulations	*Nature Conservation Act 1992*	Department of Environment and Science (Queensland Government)	Ph: 13 QGOV (13 74 68) Koala.assessment@des.qld.gov.au
• Interference with fish passage in a watercourse, mangroves • Forestry activities on State land tenures	*Fisheries Act 1994* *Forestry Act 1959*	Department of Agriculture and Fisheries (Queensland Government)	Ph: 13 QGOV (13 74 68) www.daf.qld.gov.au
• Matters of National Environmental Significance including listed threatened species and ecological communities	*Environment Protection and Biodiversity Conservation Act 1999*	Department of Agriculture, Water and the Environment (Australian Government)	Ph: 1800 803 772 www.environment.gov.au
• Development and planning processes	*Planning Act 2016* *State Development and Public Works Organisation Act 1971*	Department of State Development, Infrastructure, Local Government and Planning (Queensland Government)	Ph: 13 QGOV (13 74 68) www.dsdmip.qld.gov.au
• Local government requirements	*Local Government Act 2009* *Planning Act 2016*	Department of State Development, Infrastructure, Local Government and Planning (Queensland Government)	Ph: 13 QGOV (13 74 68) Your relevant local government office
• Harvesting timber in the Wet Tropics of Qld World Heritage area	*Wet Tropics World Heritage Protection and Management Act 1993*	Wet Tropics Management Authority	Ph: (07) 4241 0500 www.wettropics.gov.au

Appendix C.

SQP CV

SIMONE FORMAN

Senior Ecologist / Suitably Qualified Botanist

Professional Summary

Simone commenced working with FPE as an undergraduate and since this time, has developed skills across a diverse range of ecological disciplines, with key skills in fauna ecology and botany. Through her involvement in project management, field work, data analysis, and preparation of a variety of technical reports, Simone has achieved a strong working knowledge and understanding of matters relating to environmental/ecological management and compliance for private clients and local and state government and departments.

Simone's main area of interest and capability is in ecology and conservation, which is reflected through her chosen area of tertiary study (animal ecology) and completion of additional training and competencies. Her background in Environmental Science and Ecology stems from highschool, where she received awards for Marine Science and Biology. She then received a Vice-Chancellor's Merit Scholarship from the University of the Sunshine Coast to complete a Bachelor of Science.

Since 2015, Simone has assisted FPE's Protected Plants SQP in delivering a multitude of flora surveys in accordance with the *Flora Survey Guidelines – Protected Plants*, and since 2018, has taken a lead role on such surveys. Her speciality includes coastal heaths, sedgelands, swamps and Eucalypt communities. She has experience surveying and identifying regional ecosystems (Neldner, conducting BioCondition surveys and subsequently scoring against benchmarks, and developing bush restoration plans. She has accumulated 115 points on the Suitably Qualified Person Self-Assessment Grading System, and thus is considered to be an SQP for conducting protected plant surveys.

Relevant Project Experience

Mount Glorious Road Safety Upgrade Project

Client: Department of Transport & Main Roads | **Role:** Lead Ecologist

Simone led the on-ground ecological assessments for this project which included survey of five sections of Mount Glorious Road that required safety upgrade works. This included conducting diurnal surveys to identify fauna habitat, ground-truthing and mapping of regional ecosystems, and completing a Protected Plants Survey. She then subsequently coordinated the delivery of an Impact Management Plan for conservation significant *Gossia inophloia* (Thready Bark Myrtle) and *Cyperus semifertilis* (Missionary Nutgrass). This incorporated calculating offset of protected plants that would be impacted.

Pomona Kin Kin Road Upgrade Project

Client: Department of Transport & Main Roads | **Role:** Lead Ecologist

Simone led the ecological team for this project which included identifying, marking out and managing protected plants including *Rhodamnia rubescens* (Scrub Turpentine) and *Xanthostemon oppositifolius* (Southern Penda) within the road corridor. The project additionally included targeted surveys for threatened frogs, fauna spotter catching services and a water quality monitoring program.

Sunshine Coast Industrial Park Stage 2

Client: Economic Development Queensland | **Role:** Lead Ecologist

Simone has been a lead ecologist on this project, which required the development of a suitable offset program to supplement the loss of 9.5 hectares of native vegetation associated with the redesign of a section of the Sunshine Coast Industrial Park. The objective of the project was to restore 31.5 hectares of bushland, which was heavily impacted by past ground disturbance and pine plantation activities. Simone completed the on-ground flora and fauna assessments, including protected plant surveys, targeted CEEVNT fauna surveys, in-stream fish surveys and more. She was subsequently pivotal in developing the project's environmental documentation (Fauna

QUALIFICATIONS

Bachelor of Science (Environmental Science & Animal Ecology), University of the Sunshine Coast (2015)

RELEVANT TRAINING

Regional Ecosystem Framework Training

QLD White Card (CPCCWHS1001 – Prepare to work safely in the construction industry)

Operate vehicles in the field (PMASUP236) & Operate light vehicle (RIIVEH201D)

First Aid (HLTAID011, HLTAID010, HLTAID009)

Advanced Reptile (Venomous Snake) Handling

Fauna Spotting & Handling Workshops

Work safely at heights (RIIWHS204D)

QLD Boat License

SCUBA – Open Water Diver

MEMBERSHIPS

Native Plants Queensland

Australasian Bat Society

QLD Frog Society

Wildlife Volunteers Association Inc. (WILVOS)

Management Plan, Offset Rehabilitation Plan, Species Management Programs etc) to guide the operational works.

Mount Emu She-Oak Translocation Project

Client: Sunshine Coast Council | **Role:** Ecologist

Simone has been a key team member for this project since 2017 which involved the translocation of 1.2ha of heath tiles and over 200 Endangered *Allocasuarina emuina* plants to meet EPBC Act approval requirements. Simone led the initial population surveys that were conducted prior to translocation activities which involved coordinating a team of botanists to identify, locate and demarcate (*in situ* & GPS coordinates) all Mount Emu She-oak plants within existing habitat. Following the translocation to the receival area, Simone has undertaken BioCondition monitoring utilising the *Eyre et al* methodology and population count surveys of the both the translocated and retained *Allocasuarina emuina* populations. Alongside Peter Young, she assisted with collecting reference site BioCondition data that assisted with the development of a benchmark for closed healthlands (RE 12.2.12).

Acid Frog & Eastern Ground Parrot Monitoring Program

Client: Sunshine Coast Council | **Role:** Lead Ecologist

Simone is a key team member of this project where she is involved with organising and undertaking surveys for threatened acid frogs (Wallum Sedgefrog, Wallum Rocketfrog and Wallum Froglet) and vulnerable Eastern Ground Parrots, as well as associated vegetation monitoring and pest animal monitoring. This project was required to meet specific legislative requirements under the EPBC and NC Acts associated with the Sunshine Coast Airport Expansion Project. As part of this project, Simone has led protected plant surveys, identifying *Acacia baueri* subsp. *baueri* (Tiny Wattle) and subsequently developing an Impact Management Plan for the species. She has also located a population of *Durringtonia paludosa* (Durringtonia) during bi-monthly vegetation surveys.

Glenview Koala Offset Project

Client: Department of Transport and Main Roads | **Role:** Lead Ecologist

Simone was a key coordinator in managing TMR's Koala offset property related to the Caloundra Road to Sunshine Motorway (CR2SM) Bruce Highway Upgrade. The scope of this project includes Koala habitat monitoring, weed management and fire management to fulfil the requirements of the approved Offset Management Plan for the site. Simone regularly organises and undertakes field monitoring inclusive of annual Koala monitoring utilising the Spot Assessment Technique (SAT) in conjunction with USC's Koala Detection Dog team, annual BioCondition surveys utilising the Eyre et al (2015) methodology, surveys and mapping of conservation significant flora, fauna habitat surveys and weed audits. She is involved in the analysis and interpretation of results and technical report writing. Protected plants identified on site included *Pararistolochia praevenosa* (Richmond Birdwing Butterfly Vine), *Helicia ferruginea* (Rusty Oak), *Syzygium hodgkinsoniae* (Smooth-bark Rose Apple) and *Rhodamnia rubescens* (Scrub Turpentine).

Lower Mooloolah River Environmental Reserve Offset Project

Client: Sunshine Coast Council | **Role:** Ecologist

Simone has been a key contributor to this project and has undertaken Habitat Quality Assessments in accordance with DES's *Guide to determining terrestrial habitat quality: A toolkit for assessing land based offsets under the Queensland Environmental Offsets Policy*. This included conducting site condition assessments utilising the BioCondition assessment methodology and assisting with acid frog surveys. Simone has technical input into the associated Habitat Quality Assessment Summary Report and has been involved in developing the site Rehabilitation Plan to convert pasture areas into suitable vegetation for the on-going conversation of acid frogs and other key species.

SPECIALISATIONS

Ecological surveys (terrestrial and aquatic) & monitoring programs

Environmental assessments and scoping

Field based investigation and compliance monitoring

Data analysis, GIS mapping and technical reporting

WORK HISTORY

2015 – Current
Future-Plus Environmental, Sunshine Coast, QLD
Environmental Scientist / Ecologist – Full time

PLANT SPECIMENS

Queensland Herbarium (Bris) AQ 970856

Zieria exsul

Coll. P. Young (3865) & Foreman, S. from Mountain Creek State Highschool

Sunshine Coast Airport Expansion Project

Client: Sunshine Coast Council / Sunshine Coast Airport | **Role:** Lead Ecologist

Simone leads annual BioCondition surveys of all airport offset areas alongside Peter Young in heathland, sedgeland and *Melaleuca* swamp habitats and compiles all reporting deliverables.

Additionally, preliminary ecological assessments were undertaken within portions of vegetation surrounding the Sunshine Coast Airport where Council had highlighted Obstacle Limitation Surface (OLS) issues. The assessments included determining and mapping regional ecosystems, assessing ecological value and likely impacts, and identification of any conservation significant flora populations or fauna habitat to inform vegetation management options.

Saltwater Creek Bridge Upgrade Project

Client: Department of Transport and Main Roads | **Role:** Ecologist

Simone coordinated field operations for this project, which included ecological surveying of floodways, proposed borrow pit areas and land resumption areas along 20km section of the Bruce Highway between Maryborough and Torbanlea. In conjunction with a Principal Botanist and Aquatic Ecologist, Simone undertook fauna habitat assessments, flora assessments (including ground truthing of mapped regional ecosystems and opportunistic searches for CEEVNT flora), and aquatic and amphibian habitat assessments within a 200m buffer of each survey location. Simone completed all the detailed desktop assessments for the project as well as reporting of results in a comprehensive Preliminary Ecological Assessment Report. The reporting included identifying relevant legislative and regulatory requirements and approvals that would be associated with construction based on the field assessments.

Stanley River Bridge Upgrade Project, Peachester Road

Client: Department of Transport and Main Roads / Roadtek | **Role:** Ecologist

Simone coordinated and completed ecological assessments related to river and remnant riparian vegetation that would be impacted by bridge upgrade works associated with scour protection. The diurnal surveys included working with Dr Peter Young to undertake protected plant surveys, assessments of Lowland Rainforest of Subtropical Australia TEC and fauna habitat identification. Nocturnal surveys included spotlighting and aural survey techniques particularly targeted threatened amphibians, of which Giant Barred Frog (*Mixophyes iteratus*) and Cascade Treefrog (*Litoria pearsoniana*) where directly observed. Thus assessments against the significance of impact criteria was required for GBF & the TEC, as well as the development of a species management plan for both listed frogs under the NC Act.

Casuarina Creek Boat Ramp

Client: Department of Transport and Main Roads | **Role:** Lead Ecologist

This project involved the development of a new two-lane boat ramp at Casuarina Creek in Port Alma. Simone completed the on-ground site assessments which encompassed the identification and mapping of marine plants, aquatic fauna habitat (estuarine river and intertidal), invasive plants and other relevant environmental values. She was then the lead author of the Environmental Assessment Report.

Redland Bay Islands Vehicle Ferry Terminal

Client: Sealink | **Role:** Lead Ecologist

Detailed site assessments were completed for the upgrade of the vehicle ferry terminal in Redland Bay and various approvals (including works within the Moreton Bay Marine Park) sought for the works. The site is located within the Weinam Creek Priority Development Area and required a capital dredging campaign. Simone undertook the preliminary site environmental assessments, which identified impact and removal of marine plants to facilitate the terminal upgrade. Simone assisted with developing the Marine Plant Monitoring Program, lead the baseline (pre-construction) marine plant surveys and authored and issues the subsequent report to DAF.

Future-Plus Environmental

P: 07 5357 9169
E: info@future-Plus.com.au
A: 4/40 Technology Drive,
Warana QLD 4575